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HAPPY
NEW YEAR!

January, 1948

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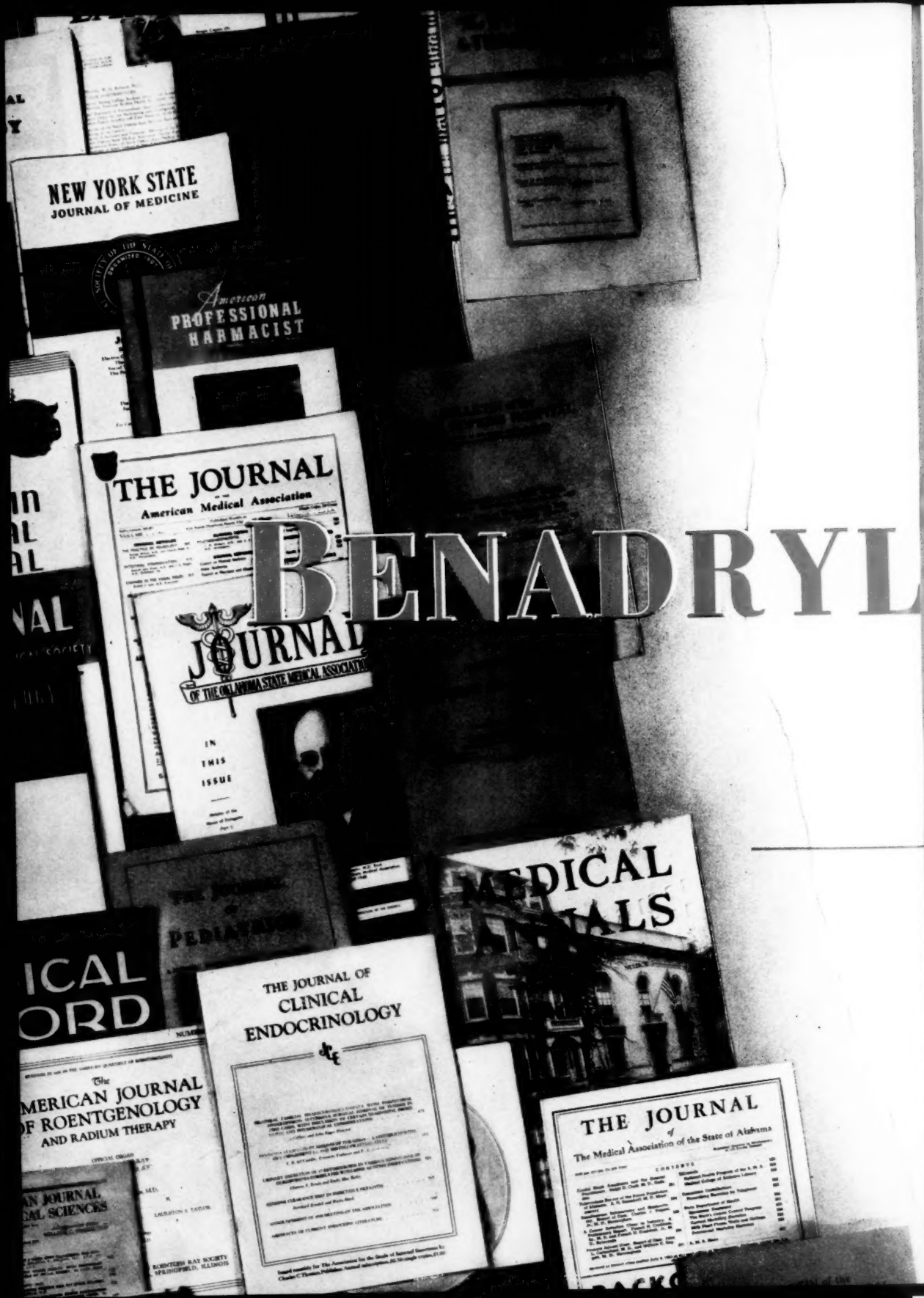
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GUEST EDITORIAL

Post-Graduate Education in Anaesthesia

THE student-specialist, more than any other of us, needs the lessons of the laboratory, said Sir William Osler, and wide contact with men in other departments may serve to correct the inevitable tendency to a narrow and perverted vision, in which the life of the ant-hill is mistaken for the world at large. It has long been a maxim that physiology is a requisite introduction to medicine, and Sir Charles Sherrington, in *Man on his Nature,* points out that the word was first used by Jean Fernel in 1542.

As in medicine generally, so in its branches, the so-called basic sciences ought to be understood, and increasingly those who have to do with the teaching of anaesthesia are emphasizing the importance of some special knowledge of anatomy of biochemistry, of pharmacology and of physiology. Recently, in the English-speaking world at least, medical schools are paying more and more attention to the teaching of anaesthesia, following the leadership of Ralph M. Waters, Professor of Anaesthesia at the University of Wisconsin. Every now and then one hears of the establishment of another department of anaesthesia, in each instance with an increase in the number of lectures, of laboratory periods and of the hours spent taking an active part in clinical anaesthesia. It is remarkable how much satisfaction this improvement brings to the medical student; in fact, it is he who has caused it to come about by persistently requesting better opportunities to learn anaesthesia.

With the growing tendency towards a better appreciation of the necessity of good anaesthesia, of greatest importance is the post-graduate course. Seeing that there is considerable similarity between the courses already established, it may suffice briefly to describe the organized Three-year Diploma Course which functions in the department of anaesthesia at McGill University. In this course the aspirant must have had one year of internship in an approved hospital, preferably in the department of internal medicine. Throughout the three years, the candidate resides in one of six hospitals moving from one to another every six months. In this rotative manner the individual gains a diversity of experience under the tutelage of many qualified anaesthetists. The benefits of this many-sided method of acquiring skill are readily evident for he who learns from many masters is bound to be more versatile and more percipient than he who ranges under one rubric. The anaesthetist of tomorrow ought therefore to be all the more accomplished. Such a course enables the participant to prepare for the Diploma in Anaesthesiology of The Board of Anaesthesiology of The American Medical Association, for the Diploma in Anaesthesia of The Royal Colleges of Physicians and Surgeons of England, and/or, for Certification in Anaesthesia by The Royal College of Physicians and Surgeons of Canada. Furthermore, from the research point of view, one or more of those who have taken this course are carefully chosen from time to time to carry out investigation in anaesthesia. Has not

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John Dewey written, just last year, in his *Problems of Men,* that according to empirical pragmatic philosophy, science provides the only means we have for learning about man and the world in which he lives?

All through the course there are weekly seminars and symposia, carefully planned and supervised. Occasionally each year guest speakers of distinction are brought on from other universities. Each member is obliged to write a thesis on an allocated subject which, after presentation, is subsequently edited and mimeographed for distribution. As early in the course as can be arranged with the chairmen of the respective departments, ancillary courses are given on topics of the basic sciences as these pertain to anaesthesia. Aristotle has said that "physicians of the better class devote much attention to the study of the human body."

In anatomy fifteen afternoons are spent in the laboratory under the direction of the Professor or his Associate and the course comprises: 1. The anatomy of the respiratory tract with special reference to tracheotomy, intubation, etc. 2. The vertebral column, vertebral canal, spinal cord and the meninges. 3. The general course and distribution of the peripheral nerves. 4. The cranial nerves. Special attention is paid to the sites where each nerve is available for injection, the anatomy and surface landmarks of such sites, advantages and disadvantages of alternate sites, hazards of each and safeguards to be taken, anaesthetic area resulting from each block, common variations and possible sources of partial failure. As an example, the brachial plexus may be taken. First the composition and anatomy of the plexus is dealt with, its branches, their course and distribution. From this four different routes for injecting the plexus are arrived at—the paravertebral, supra-clavicular, infra-clavicular and axillary. The anatomy and surface markings of each route are described. The students carry out the injections on the cadaver and have to verify that the point of their needle actually reached the desired spot. The advantages and disadvantages and hazards of each route are discussed. Similar injection sites in the distal part of the upper limb and in all parts of the body are dealt with in the same way. Extradural blocks, including sacral (so-called "caudal") block, and dental blocks receive special attention.

Instructional opportunities for anaesthetists in the department of biochemistry of McGill University had inception during the war when those medical officers of the fighting forces who had been sent for training in anaesthesia were detailed to that department. Here the following schedule is at present in operation: 1. Blood—Present knowledge of blood preservation; trends in the operation of hospital blood banks and in the distribution of blood to hospitals; new developments in apparatus for collecting, storing and administering blood. 2. Blood Substitutes and Blood Groups—Current views on so-called blood substitutes; use of preserved blood serum, plasma, albumin and globin; survey of blood groups and types. Laboratory demonstrations on technique of blood-typing. 3. The Rh Factor and Its Clinical Significance—Present knowledge and trends. 4. Body Water and Electrolytes—Review of salt and water metabolism. 5. Nutrition—Basic considerations in energetics and nutrition. 6. Liver Function and Liver Damage—Critique of various tests of liver function; factors which cause liver damage; renohepatic relationship. 7. Kidney Function—Current concepts of function and factors that lead to impairment. 8. Protein Metabolism in Disease—Disturbance in nitrogen metabolism after trauma; treatment—restoration of nitrogen balance.

In the department of pharmacolcgy six one hour periods are devoted to discourses on the actions of the various drugs used in anaesthesia. Particular attention is paid

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to the opiates, the barbiturates, drugs used for regional anaesthesia, curare preparations, and the analeptic drugs. In each instance special consideration is given to relative toxicity, efficacy and applicability.

The course in physiology consists of lectures and demonstrations followed by laboratory periods in which the salient points of the lectures are studied experimentally. Six afternoons of three hours each are given over to this work. The physiological background of problems confronting the anaesthetist are discussed. The main attention is directed to three major systems most directly implicated in anaesthesia: (1) The nervous system, (2) the respiratory system, and (3) the cardiovascular system. Under the first are treated the problems of Pain, Sleep and Unconsciousness, Muscular Tone and Relaxation, and the Autonomic System. For the second are subsumed Mechanical Factors, Nervous Control, and Chemical Control. The third is divided under the headings of The Heart, and The Blood Pressure.

Imbued with so much knowledge of those parts of physiology and its allied subjects which particularly illuminate his speciality, the student of anaesthesia may find himself on

Serene Plateaus, well fortressed by the wise,

The *templa serena, bene munita* (Lucretius de *rerum natura*, 11. 7-8). The student of anaesthesia will find himself equipped intellectually to attack those clinical problems, which are so varied and so ever-present in this branch of medicine.

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McGill University, Montreal, Canada.

EDITOR'S NOTE. Dr. Bourne is one of the outstanding teachers of Anesthesia in America.

Floral Eponym (58)

GENTIANA

GENTIUS, KING OF ILLYRIA

Gentius, whose physicians discovered the tonic value of the gentians, was the son of Pleuratus and a contemporary of Perseus, the last king of Macedonia. He is first mentioned as having incurred the displeasure of the Romans on account of the piracies of his subjects who infested all the Adriatic. His greatest faux pas was an alliance with Perseus (B.C. 168) which led to his speedy downfall. He and his wife and children were sent as captives to Rome to adorn the triumph of Anicius Gallus. Thence Gentius was sent to Spoletium where he ended his days in captivity. According to Pliny and Dioscorides, the herba Gentiana derives its name from this Gentius, who first made known its medicinal value.

The gentians are chiefly perennial herbs. They are among the most desirable of alpine plants, and of blue flowers in general. The blue gentian, celebrated by tourists in the Alps, is mostly the stemless *G. acaulis*.

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DIGESTIVE SYMPTOMS ASSOCIATED WITH DISORDERS LOCATED OUTSIDE OF THE DIGESTIVE TRACT*

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A careful analysis of any large series of patients with so-called "digestive symptoms" would reveal that in at least 50 per cent the basic disorder was located outside of the gastrointestinal tract. If one were to include among the non-gastrointestinal disorders psychosomatic digestive manifestations, the percentage of non-digestive disorders would soar to a still higher figure. Such a situation makes it imperative that the gastroenterologist, if he is to avoid serious errors in diagnosis, be a good general internist at the same time. How distressing it must be to the general clinician, not to mention the patient, to hear the occasional ultra-specialist in gastroenterology remark, "I have no idea what her trouble is—x-ray of her gall-bladder, stomach, and bowel are all normal", or "This is purely a functional disorder—there is nothing wrong with her"! To be sure, the experienced gastroenterologist with his special techniques such as fluoroscopy, gastroscopy, and proctoscopy, and his wide therapeutic experience in his chosen field can be of inestimable assistance to the general internist on many occasions, but Heaven help the unsuspecting victim of a tabetic crisis, coronary thrombosis, lead colic, or neurotic vomiting if he fall into the hands of a narrow-minded gastroenterologist whose thought processes are limited by the internal boundaries of the peritoneal cavity!

Such "digestive symptoms" as abdominal pain, nausea, vomiting, heartburn, diarrhea, constipation, eructation, flatulence, singultus, and jaundice are encountered in a variety of extra-digestive disorders. All of these symptoms, alone or in various combinations, may be prominent features in a variety of infections, poisonings, pulmonary diseases, cardiovascular and renal disorders, obstetrical, gynecologic and urologic conditions, metabolic disturbances, blood dyscrasias, extra-abdominal or metastatic tumors, and diseases of the central nervous system or special sense organs. Certain of the more important of these conditions will be discussed in the order just enumerated.

*Read by invitation at the 100th meeting of the Medical Society of Virginia in Roanoke, October 13-15, 1947.

INFECTIOUS DISEASES

Such common infections as *colds, influenza, measles, chicken pox, scarlet fever, and streptococcal sore throat* are frequently ushered in with anorexia, nausea, vomiting, and stomach-ache. Although this is particularly true of young children, it is not an uncommon mode of onset in adults as well. Upper respiratory complaints such as nasal congestion, coryza and sore throat as well as chilliness, fever, and malaise, are usually present. These symptoms along with a history of exposure, when obtainable, and the characteristic appearance of the skin, buccal mucosa, or throat should enable one to make the correct diagnosis on the first or second day. However, most physicians have undoubtedly encountered numerous instances of what is called—for lack of a better name—"*intestinal flu*", an acute infection, in all probability due to a filtrable virus in view of its contagiousness, which is characterized by severe abdominal pain, nausea, vomiting, diarrhea, malaise, and fever. In this disease symptoms referable to the upper respiratory tract may be minimal or entirely lacking at first, although coryza and sore throat frequently develop several days later when the gastrointestinal symptoms are subsiding. The abdominal pain may be sufficiently severe to simulate acute cholecystitis or appendicitis and may puzzle the most astute surgical consultant. Leucopenia, when present in this type of infection, will prove helpful in distinguishing it from an acute surgical condition.

Vomiting is a common early symptom in *erysipelas* and may prove baffling if the skin lesion is not detected. Mesenteric or retroperitoneal adenitis complicating erysipelas, scarlet fever, or other streptococcal infections may readily be confused with appendicitis or other primary abdominal conditions, while *mumps* may give rise to an acute pancreatitis or oophoritis with severe abdominal pain and

vomiting. It is important to remember that these complications of mumps rarely if ever require operative treatment in contrast to primary acute hemorrhagic pancreatitis or pyogenic ovarian abscess. A history of parotitis, which precedes the abdominal complications in the majority of cases of mumps, is most helpful in differential diagnosis.

Every pediatrician is familiar with the severe and at times intractable vomiting that so commonly confronts him in children with *whooping cough*. Persistent diarrhea may also prove troublesome. Diagnosis is rarely difficult in view of the paroxysmal cough with the characteristic whoop.

Abdominal pain, rigidity, and vomiting may be prominent features and occasionally the only symptoms of an attack of *acute rheumatic fever*. Differentiation from acute appendicitis may be extremely difficult. Some believe the abdominal symptoms are due to rheumatic peritonitis. The response to salicylates may be dramatic.

Infectious mononucleosis, also known as acute benign lymphoblastosis or glandular fever, is a peculiar infection presenting a highly variegated clinical picture. Marked anorexia, vomiting, abdominal pain, and jaundice are not infrequently encountered. This disease can usually be recognized by the generalized lymphadenopathy, characteristic blood picture with numerous abnormal lymphocytes, and a positive heterophile antibody test.

Weil's disease, due to Spirocheta icterohemorrhagica, furnishes another example of an acute generalized infection in which abdominal pain, vomiting, hepatic enlargement and jaundice are prominent manifestations. It should always be considered in patients with febrile jaundice. Renal involvement with albuminuria and azotemia are commonly present, but final diagnosis depends upon isolation of the causative organism through inoculation of blood and urine into experimental animals or upon agglutination tests. *Yellow fever* and *malaria* are other infections which must be considered in the differential diagnosis of acute febrile jaundice.

Many patients with *septicemia* complain of vomiting, abdominal pain, distention, diarrhea or constipation, and jaundice is not infrequently present. The importance of a blood culture in any case of unexplained fever, no matter what the presenting symptoms may be, cannot be too strongly emphasized.

In rickettsial infections such as *typhus* and *tick-bite fever* vomiting may be very pronounced. Diagnosis is based upon history of lice infestation or tick-bite, the characteristic eruption, and the Weil-Felix reaction.

POISONINGS

Gastro-intestinal symptoms are almost invariably present and frequently violent following the ingestion of various poisons such as bichloride of mercury, carbolic acid, arsenic, phosphorus, fluoride, and other substances less frequently swallowed by accident or with suicidal intent. The truly horrible picture of vomiting, excruciating abdominal cramps, uncontrollable bloody diarrhea, and renal shutdown in the bichloride victim can never be forgotten by one who has looked upon it. Immediate gastric lavage is always indicated in any depressed or psychopathic patient who is found to be suffering from acute abdominal symptoms, in order to wash out as much of the noxious agent as possible before administering an appropriate antidote. The ingestion of arsenic or phosphorus may be followed by rapidly fatal liver necrosis with steadily deepening jaundice. Certain anesthetics, notably chloroform, may cause sufficient liver damage to produce jaundice and occasionally death from acute yellow atrophy of the liver. Toxic hepatitis, which may go on to fatal yellow atrophy, has long been recognized as one of the hazards of antisyphilitic therapy with the organic arsenical compounds. The same may be said for cinchophen, rather widely used as an analgesic in arthritis or gout, and the various sulfonamide drugs. The latter more frequently produce jaundice in the form of an acute hemolytic anemia which is usually reversible if the drug is discontinued in time.

"Painter's colic", characterized by severe abdominal cramps and constipation, has long been known to occur as a manifestation of lead poisoning. A history of excessive exposure to lead along with other manifestations of lead poisoning such as lead-line on the gums, peripheral neuritis, anemia, stippling of the erythrocytes, and increased concentration of lead in the blood or urine as a rule furnish adequate clues to the diagnosis. Excessive exposure to benzol may give rise to anorexia, nausea, and vomiting long before any changes in

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the blood picture become apparent. Time does not permit mentioning the many other chemicals and drugs which may produce gastro-intestinal symptoms, but one rather amusing therapeutic paradox is worthy of comment: in order to relieve an acute attack of gout, it is necessary to administer sufficient colchicine in spaced doses to induce abdominal cramps or diarrhea. I have yet to see the gouty victim who did not welcome the onset of cramps or the "trots"!

PULMONARY CONDITIONS

Tuberculosis: The onset of pulmonary tuberculosis is insidious in the majority of cases. The symptoms are frequently so mild that the patient does not think it necessary to consult a physician. When he does, his complaints may be vague and entirely non-pulmonary. He reports that he is feeling below par, his appetite has fallen off, he has indigestion with gas and fullness after meals, and he has lost some weight. If the physical examination is negative (as it often will be), the physician is tempted to dismiss the patient as nervous and run-down, prescribe a tonic, and think no more about it. Further inquiry might have revealed that the patient had a trivial morning cough, felt warm in the afternoon, and broke out in a sweat at night. Whether or not the latter symptoms are elicited, such a patient should have a fluoroscopic examination or preferably an x-ray of his chest, a sputum specimen examined for tubercle bacilli, and should be requested to record his temperature morning and evening for a week or two. If such precautions were taken regularly, many a case of incipient pulmonary tuberculosis would be nipped in the bud.

Pneumonia and Infarction: It is surprising how often early lobar pneumonia may be mistaken for an acute surgical abdominal condition such as cholecystitis or perforated ulcer. Diaphragmatic pleurisy, so common when a lower lung lobe is involved, is responsible for the confusion, since the pain is frequently maximal in the upper abdomen and muscle rigidity may be marked. Vomiting or singultus may further serve to cloud the picture. Physical signs over the chest may be minimal or absent, but fluoroscopy or x-ray will usually reveal central consolidation and spare the patient an unnecessary laparotomy. Pulmonary embolism with lower lobe infarction and diaphragmatic pleurisy may masquerade in a similar manner as an acute abdominal disorder.

Spontaneous Pneumothorax: The sudden severe pain of a spontaneous pneumothorax will occasionally be referred to the abdomen, though more often experienced in the chest, shoulder, or neck. Careful chest examination supplemented with roentgen studies should serve to avoid confusion with any condition below the diaphragm.

Bronchitis: Abdominal pain due to soreness of the abdominal muscles may become pronounced in any patient with a severe or protracted cough such as occurs in an acute bronchitis or atypical pneumonia of the virus type. Coughing is at times severe enough to set up the gag reflex, and thereby induce vomiting as it does in children with whooping-cough.

Hemoptysis vs. Hematemesis: When a patient is brought in to the hospital after an exsanguinating hemorrhage from the mouth and nose, it is not always so easy to determine the source of the bleeding. At least three possible sites must be considered —upper respiratory tract, lung, and esophagus or stomach. Such a patient should be disturbed as little as possible for fear of starting up the bleeding again, and the physician must often rely upon the previous history, examination of the nose, and auscultation of the anterior chest for clues. Thoracic percussion and all but the lightest of abdominal palpation are contraindicated. Although the early treatment of massive hemorrhage, no matter what the source, is fairly stereotyped—complete rest, morphine, and transfusion if necessary—nonetheless it is desirable to distinguish if possible between hematemesis and hemoptysis in order that an appropriate ulcer regime or chest-splinting measures and possibly artificial pneumothorax may be instituted.

Pulmonary Emphysema: Pseudo-enlargement of the liver is frequently encountered in pronounced emphysema of the lungs and is often mistaken for true hepatic enlargement. The widening of the costal angle from the normal acute angle to an obtuse angle (in extreme cases almost 180°) and the downward displacement of the liver by the emphysematous lung are the chief factors in bringing about the apparent enlargement of the liver. Careful percussion of the chest will disclose that in emphysema the upper border of liver dullness is much lower

than normal so that the vertical dimension of the liver is no greater than normal, even though the edge may be felt several centimeters below the right costal margin.

CARDIOVASCULAR DISORDERS

Coronary Disease: "Sudden death from acute indigestion" has long been a favorite phrase among newspaper reporters in explaining the unexpected demise of many a prominent citizen. We now know from post-mortem studies that the majority of these sudden deaths, characterized by severe upper abdominal and low chest pain, vomiting, ashen pallor, collapse and rapid exitus, are actually instances of acute coronary thrombosis. Cases of nonfatal coronary occlusion in which the pain may be referred largely to the upper abdomen frequently create difficult problems in differentiation from acute abdominal conditions such as acute cholecystitis or perforated ulcer. The presence of a mushy first heart sound, pericardial friction rub, cardiac arrhythmia, variations in blood pressure, and—most important of all—electrocardiographic changes will usually serve to establish the diagnosis.

One of the most difficult problems that confronts the internist is the distinction between true angina pectoris and pseudo-angina. In typical cases of true angina, the pain is substernal with radiation down the left arm, is usually brought on by excessive exertion, and disappears after a brief rest period. Response to nitroglycerine is frequently dramatic. However, a number of patients with true angina complain chiefly of substernal oppression or pressure about the heart, particularly after meals or in bed during the night. Such a patient will almost invariably attribute his distress to "gas on the stomach" and may even obtain relief from soda-induced eructation. The electrocardiogram is not necessarily of assistance in the diagnosis of angina pectoris since it may show no abnormalities whatsoever.

A wide variety of conditions may give rise to pseudo-angina; among the more common are pylorospasm, cardiospasm, gas bubble in the stomach as a result of aerophagia, intercostal neuralgia, arthritis of the cervical spine, nervous tension and heart consciousness. A fair conclusion as to the etiology of the precordial discomfort can only be reached in many cases after exhaustive study and careful evaluation of subjective symptoms, objective signs, x-ray and laboratory data. Although it is not infallible, the most useful single differential point in the speaker's experience has been the positive or negative relationship of the precordial discomfort to physical exertion.

Congestive Failure: Right-sided cardiac failure is characterized by enlargement of the liver from chronic passive congestion and engorgement of the splanchnic veins, a situation which may give rise to a variety of gastro-intestinal symptoms such as anorexia, nausea, vomiting, abdominal fullness, excessive gas, ascites, and at times severe pain in the upper abdomen. The pain is most frequently encountered when rapid enlargement of the liver occurs in sudden right-sided failure such as may develop in mitral stenosis, acute rheumatic myocarditis, kyphoskoliosis, or at the onset of auricular fibrillation. The liver is found to be much enlarged, firm, and extremely tender; jaundice may ensue, especially if pulmonary infarcts are concomitantly present. In patients with tricuspid insufficiency expansile pulsation of the liver may be observed.

In badly decompensated patients who have failed to respond well to adequate digitalization, the late onset of nausea and vomiting may raise a fine point in differential diagnosis between digitalis intoxication on the one hand and increasing splanchnic congestion on the other. Serial electrocardiograms may prove helpful and atropine will at times relieve vomiting from over-digitalization, but it is sometimes necessary to discontinue digitalis for several days in order to arrive at the correct interpretation of the gastro-intestinal symptoms.

Pericarditis: Acute pericarditis, either rheumatic, tuberculous, or pyogenic, may start suddenly with severe pain which may be referred to the upper abdomen, giving rise to muscle spasm and rigidity. Cardiac signs and symptoms have been so meager on occasions that exploratory laparotomy has been performed in such cases, only to have a pericardial friction rub or large pericardial effusion develop several days later.

In constrictive pericarditis, the heart is usually small and the heart sounds may be quite innocent. Such a condition should be suspected whenever unexplained hepatomegaly and ascites are observed. A small arterial pulse pressure and marked elevation of the venous pressure complete the clinical

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syndrome. Pericardiectomy is often followed by striking relief.

Aneurysms: In contrast to aneurysms of the thoracic aorta which are usually syphilitic, the majority of abdominal aneurysms are said to be arteriosclerotic in type. Abdominal aneurysms may be asymptomatic and discovered accidentally, or they may give rise to deep abdominal pain with associated gastro-intestinal dysfunction. Palpation may reveal a pulsating mass and x-rays frequently disclose calcification in the wall of the aneurysm.

Sudden excruciating abdominal pain in a hypertensive or arteriosclerotic individual may signify the development of a dissecting aneurysm of the aorta, although more commonly the initial pain will be felt in the chest (resembling a coronary occlusion) and subsequently extend down the back and into the abdomen as the dissection proceeds along the course of the aorta. The abdominal pain, tenderness, muscle spasm, shock, and leucocytosis may simulate an acute surgical condition such as the rupture of a hollow viscus.

Splanchnic Arteriosclerosis, Thrombosis, and Embolism: Prominent among the woes to which the elderly arteriosclerotic individual is subject are such gastro-intestinal symptoms as anorexia, fullness and abdominal pain after meals, excessive gas, heartburn, nausea, constipation, and vague continuous abdominal discomfort. Careful abdominal examination and survey of the gall-bladder, stomach, and intestinal tract by roentgenologic techniques will often fail to reveal a structural abnormality. There can be little doubt that arteriosclerosis with splanchnic ischemia is largely responsible for the digestive symptoms. The post-prandial exacerbation of the abdominal pain is readily explainable on the grounds that the narrowed mesenteric arteries are unable to meet the increased demands for blood that are placed upon them at a time when secretion of digestive juices and assimilation of the products of digestion are at a peak. The situation is comparable to ischemia of the heart muscle in patients with coronary disease during excessive physical exertion and might logically be described as "gastro-intestinal angina".

Mesenteric arterial thrombosis is the most serious complication of splanchnic arteriosclerosis, requiring extensive surgical resection of gangrenous bowel if the patient is to have any chance of survival. Recognition of mesenteric thrombosis depends upon a number of rather characteristic findings, including abdominal pain, progressive distention with disappearance of peristalsis, increasing shock, and pronounced leucocytosis. Symptoms of splanchnic ischemia with the various complications thereof are occasionally encountered in young individuals with periarteritis nodosa.

Emboli to branches of the celiac, mesenteric, splenic and renal arteries with subsequent formation of infarcts may give rise to severe abdominal pain, nausea, vomiting, and other digestive symptoms. Common sources of emboli are valvular vegetations in subacute bacterial endocarditis and mural thrombi in patients with auricular fibrillation or coronary disease.

RENAL DISORDERS

One of the most capable gastroenterologists of my acquaintance constantly lays emphasis upon a very sound maxim, namely: whenever you are confronted with peculiar gastro-intestinal complaints for which no basis is found in the alimentary canal, always think of the kidneys as a possible source of the symptoms. *Acute* pyelitis with chill, fever, lateral abdominal pain, tenderness, and leucocytosis may readily be confused with acute cholecystitis or pancreatitis, especially if the ureter is temporarily blocked so that no pus gets through to the bladder urine. The same may be said for the pain, nausea, and vomiting in a *Dietl's crisis* due to *intermittent hydronephrosis* which in turn results from nephroptosis with acute ureteral kinking. Relief from pain in such a crisis is accompanied by a sudden gush of urine as the block is released. Although *ureteral stricture* is considered by some to be a common cause of abdominal pain requiring periodic ureteral dilatation for relief, many are skeptical about the diagnosis of ureteral stricture except in rare instances where the constriction can be clearly demonstrated.

Acute kidney colic due to *impaction of a calculus in the ureter with* increasing back-pressure above gives rise to one of the most severe forms of pain to which man is subject. The pain may be maximal in the costovertebral angle or in the lateral abdomen; tenderness and muscle spasm may be marked, and reflex vomiting is not uncommon. Radiation of the pain into the genitalia or thigh, exacerbation of pain during or after urination, the

finding of red blood cells in the urine, and flat x-ray plate of the abdomen are all helpful in making the diagnosis. Morphine in large doses along with antispasmodic medication and at times general anesthesia are required before relief is experienced. The majority of ureteral calculi will pass spontaneously, but cystoscopic or operative removal is sometimes necessary. Ureteral colic with hematuria (due to deposition of crystals) is one of the more serious complications encountered in therapy with all of the commonly used sulfonamide drugs except sulfanilamide.

Colic, due to clots passing down the ureters, may also be a prominent symptom in *acute hemorrhagic nephritis*. Furthermore, nausea, vomiting, diarrhea, and at times flank pain may be the only symptoms at the onset of acute nephritis. Edema, hypertension, and scanty smoky urine, when present, will facilitate recognition of the renal disease, but final diagnosis will rest upon careful urinalysis with the finding of albuminuria and gross or microscopic hematuria. In *uremia,* no matter what the underlying basis, gastro-intestinal symptoms such as singultus, nausea, vomiting, diarrhea, melena, and abdominal pain may overshadow all other clinical manifestations. A uriniferous breath, pruritus, muscular twitching, characteristic retinopathy, hypertension, urinalysis, and blood chemical findings are all of assistance in recognizing this terminal phase of renal failure.

In the differential diagnosis of abdominal tumors, one must always keep in mind *renal* or *adrenal tumors,* large *hydronephrosis* or *pyonephrosis, perinephric abscess, solitary renal cysts,* and *polycystic kidneys*. The latter are almost invariably bilateral and may be easily identified if multiple large embossings are palpable over the surface. Unilateral enlargement of the kidney, on the other hand, may be readily confused with splenomegaly, hepatomegaly, pancreatic cyst, or retroperitoneal tumors. Intravenous pyelography and cystoscopy furnish valuable information in differential diagnosis.

In view of the risk of overlooking renal pathology as the basis for digestive complaints, the importance of careful urinalysis, urine culture, intravenous pyelography and cystoscopic study as diagnostic procedures cannot be too sharply stressed.

MALE UROGENITAL DISORDERS

Such conditions as cystitis, prostatitis, seminal vesiculitis, prostatic hypertrophy, calculi and tumors in the male urogenital tract must always be considered in the differential diagnosis of low abdominal and rectal pain in the male. Relation of the symptoms to urination and abnormal urinary findings are often present. Severe hemorrhage may result from erosion of carcinoma of the prostate into the rectum. Careful urologic investigation will usually serve to clarify the situation. A hugely distended bladder may at times be misdiagnosed as ascites and paracentesis performed with unfortunate results. Acute retention, such as occurs in prostatic obstruction, and neurologic bladder in association with spinal cord lesions (tabes, pernicious anemia, multiple sclerosis, transverse myelitis, or tumor) are the common causes for bladder distention. A fluid wave is often elicited, but there should be no shifting dullness in the case of a distended bladder as contrasted with ascites.

OBSTETRICAL AND GYNECOLOGIC CONDITIONS

Undoubtedly the most common cause of nausea, vomiting, and abdominal enlargement in the mature female is *normal pregnancy*. The vomiting is at times so violent and protracted that interruption of the pregnancy becomes necessary. Sympathetic morning nausea and vomiting in the prospective father during the emetic phase of his wife's pregnancy is rare, to be sure, but more common than is generally appreciated. The various abdominal symptoms that may develop in the course of pregnancy or the complications thereof are innumerable. The wise internist will always consult the attending obstetrician rather than attempt to interpret alone the complaints and vicissitudes of a pregnant lady.

Various gynecologic conditions must always be considered as likely causes of low abdominal pain in the female. Close relationship or limitation of the discomfort to the immediate premenstrual or menstrual period is highly suggestive of a gynecologic basis for the pain. *Dysmenorrhea,* or menstrual cramps, may be sufficiently severe to confine the victim to her bed for a day or two; associated nausea and vomiting may result from reflex pylorospasm. Further causes of low abdominal pain with exacerbations during menstrual periods are *endometriosis, salpingitis,* and other pelvic inflammatory lesions. *Acute right sided salpingitis* may re-

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semble acute appendicitis so closely that the surgeon dare not defer laparotomy, even though the presence of leucorrhea and palpation of a mass on pelvic examination tends to support a diagnosis of salpingitis or pyosalpinx. A number of perfectly normal women regularly experience severe sharp pain in one or the other lower quadrant, sometimes associated with nausea, at about the middle of the intermenstrual cycle. This pain, designated as Mittelschmerz, has been attributed to rupture of the mature ovarian follicle.

Among the gynecologic conditions giving rise to lower abdominal pain, fever, nausea, and vomiting which are related to menstruation should be mentioned *twisted pedicle of an ovarian cyst* and *hemorrhage into a fibroid tumor or cyst. Ruptured ectopic pregnancy* represents an acute abdominal emergency characterized by severe abdominal pain which may be referred to the right shoulder (cf. cholecystitis) and rapid development of shock; diagnosis rests upon the history and abdominal findings. Immediate laparotomy is, of course, imperative.

METABOLIC AND ENDOCRINE DISORDERS

Diabetes Mellitus: The three "polys"—polyphagia, polydipsia, and polyuria—when found in combination should always suggest the diagnosis of diabetes. Abdominal cramps are also common in unregulated diabetes and, along with muscle spasm and vomiting, may comprise the principal complaints in diabetic acidosis. The abdominal complaints may be so severe as to simulate acute cholecystitis or appendicitis, and only too often an unnecessary laparotomy has been performed when preliminary urine examination for sugar, acetone, and diacetic acid might have revealed the true nature of the situation. Marked hepatomegaly, due to fatty infiltration of the liver, is frequently noted in unregulated diabetics, especially in the severe juvenile form of the disease. These large livers may be extremely tender.

Thyroid Disease: A ravenous appetite characterizes the majority of patients with hyperthyroidism, but in severe cases vomiting and particularly diarrhea may be distressing symptoms contributing to the rapid loss of weight. Hepatosplenomegaly occurs in a fairly large percentage of hyperthyroid patients, especially if the disease is of long standing. In the absence of eyesigns or obvious goiter too many victims of hyperthyroidism are erroneously regarded as nervous dyspeptics, when more careful study would reveal tachycardia, excessive sweating, heat intolerance, tremor, elevated basal metabolism and decreased blood cholesterol level.

The full-blown picture of myxedema will rarely be missed, but less pronounced degrees of hypothyroidism are often difficult to recognize by purely clinical observation. Such patients may complain of fatigue, drowsiness, poor appetite, excessive gas, and sluggish bowels; diagnosis will rest upon the physical findings, an abnormally low basal metabolic rate and an elevated serum cholesterol.

Addison's Disease: Asthenia, hypotension, and increased pigmentation are generally regarded as the cardinal symptoms of suprarenal insufficiency. However, it is important to remember that the hyperpigmentation is not always marked, while vomiting and diarrhea may be the chief complaints in an Addisonian crisis. Diagnosis will depend upon clinical evidences of dehydration, significant decrease in the serum levels for sodium and chloride, and elevation of potassium and non-protein nitrogen Hypoglycemia, although common, is not necessarily present.

Heat Cramps: On a hot summer day it is not uncommon to see a marathon runner, tennis-player, or heavy laborer suddenly collapse with severe abdominal cramps. Abdominal tenderness and muscular rigidity may be pronounced. These "heat cramps" are attributed to excessive loss of salt by perspiration. Treatment consists of the oral or intravenous administration of saline. The wise prospective victim will avert this painful experience by the prophylactic ingestion of enteric-coated salt tablets before and during a period of excessive physical exertion.

Acute Porphyria: Severe abdominal cramps may be the presenting symptom in this rare disorder. In spite of the violent abdominal pain, there is usually no muscle spasm or rigidity. Peripheral neuropathy and encephalopathy, when present, afford additional clues as to the diagnosis. The urine is usually wine-colored, but absolute identification depends upon the spectroscopic demonstration of excessive porphyrin in the urine.

BLOOD DYSCRASIAS

Hemolytic Crises: Acute hemolytic crises occur in such blood diseases as *congenital hemolytic*

icterus, sickle cell anemia, pernicious anemia, toxic hemolytic anemias (such as favism or sulfonamide intoxication), and paroxysmal hemoglobinuria. These crises, when accompanied by fever, jaundice, abdominal pain, nausea and vomiting, may readily be confused with an acute intraabdominal infection such as cholecystitis or pylephlebitis. Dark stools rich in stercobilin and increased urobilinuria help distinguish hemolytic jaundice from obstructive jaundice; the van den Bergh test usually gives an indirect reaction in hemolytic jaundice, although a biphasic reaction may be noted in extremely severe hemolysis and free hemoglobin may actually be demonstrable in the serum.

It is a wise plan to set up a fresh blood preparation for sickling in any young colored patient with an attack of severe abdominal pain and vomiting, since such abdominal crises are rather common in sickle cell anemia. Too many of the victims have been unnecessarily exposed to the surgeon's knife when more careful pre-operative observation might have prevented such an exigency.

Pernicious Anemia: Anorexia, nausea, vomiting, and diarrhea are common symptoms in pernicious anemia during relapse. Pallor, glossitis, and neurologic changes should furnish diagnostic clues, but final identification depends upon the finding of a macrocytic anemia and histamine achlorhydria. Mild icterus is frequently present but not necessarily so.

Leukemia: Chronic myeloid and *lymphoid leukemia* are among the causes of extreme hepatosplenomegaly; these leukemias should be easily recognized from the blood count and smear.

Nausea, vomiting, and diarrhea along with hemorrhagic phenomena may be the most pronounced symptoms in *acute leukemia.* Hemorrhages into various abdominal and retroperitoneal organs give rise to puzzling masses and pains. The spleen and liver are not necessarily enlarged early in acute leukemia, but the differential blood count will usually clarify the situation.

Purpuras: Intraabdominal and intravisceral bleeding may be a prominent feature in *thrombocytopenic purpura.* It must be further recalled that if sufficient blood is swallowed (from epistaxis or bleeding gums) the stools may become tarry. A peculiar disorder characterized by abdominal cramps and intestinal bleeding is known as *Henoch's purpura* (non-thrombopenic). This condition along with another rare cause of melena, namely *hereditary telangiectasia,* may come up in the differential diagnosis of bleeding into the intestinal tract.

Banti's Syndrome: Splenomegaly, leucopenia, and microcytic hypochronic anemia comprise the triad of symptoms known as Banti's syndrome. The syndrome is known to occur following splenic vein thrombosis or other processes leading to increased pressure in the splenic vein. Massive hemorrhages from varices in the esophagus or stomach are common and probably account for the anemia. Splenectomy is the treatment of choice and may prove curative provided secondary cirrhosis of the liver has not advanced too far.

TUMORS

Time does not permit a detailed discussion of the many tumors, both primary and secondary, arising outside the gastro-intestinal tract which may give rise to digestive disturbances through pressure or invasion and which may simulate primary tumors of the alimentary canal or its appendages. Metastatic carcinoma or sarcoma from almost any portion of the body may present itself in the abdominal cavity and the various digestive organs, especially the liver. Primary tumors of the kidneys, adrenals, pelvic organs, and retroperitoneal tissues may be difficult to distinguish from carcinoma or other tumors of the stomach, colon, pancreas, etc. The lymphoma group of tumors, including Hodgkin's disease, lymphosarcoma, and follicular lymphoblastoma are important in this respect since they are often highly radiosensitive in contrast to gastro-intestinal carcinomata. If x-ray studies and other tests fail to reveal the nature of a tumor, exploratory laparotomy with biopsy is justified as a diagnostic procedure.

ORGANIC DISEASES OF THE NERVOUS SYSTEM

Infections: Vomiting and abdominal pain are frequent early symptoms in all forms of meningitis, encephalitis, and poliomyelitis. Severe headache, fever, stiff neck, positive Kernig and Brudzinski signs point toward an intracranial or meningeal infection. Accurate diagnosis depends upon cytologic and bacteriologic study of the spinal fluid. Tuberculoma of the brain and brain abscess simulate brain tumor in their manifestations.

Brain Tumor: Tumors of the brain, especially

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those in the posterior fossa, often cause a marked increase in intracranial pressure with severe headache, bradycardia projectile vomiting (the vomiting may be preceded by nausea in some instances), drowsiness, stupor, diplopia, and papilledema. Such signs as cranial nerve palsies, Jacksonian epilepsy, paraplegias, hemianopsia, and aphasia may furnish hints as to the localization. An x-ray of the skull (for possible convolutional atrophy or dislocation of the calcified pineal body) and neurosurgical consultation are indicated in any case of unexplained headache and vomiting.

Migraine: One of the worst nuisances to which large numbers of human beings are subject is migraine, characterized by periodic attacks of excruciating headache (often unilateral) and vomiting. A definite aura and transitory scotomata are often noted. The etiology remains obscure and therapy is none too satisfactory, although in a certain proportion of cases an attack may be aborted by early injection of ergotamine. Migraine is frequently mistaken for a primary gastro-intestinal upset and designated a "bilious attack".

Cerebral Vascular Accident: Apoplexy in the form of cerebral hemorrhage and thrombosis or embolism of a cerebral artery can generally be recognized by the sudden onset, evidence of pre-existing vascular disease, headache, and such localizing signs as hemiplegia, aphasia, or hemianopsia. Vomiting is common and often protracted in all types of cerebral vascular accident. If the lesion occurs in a so-called silent area of the brain or in the form of a subarachnoid hemorrhage, diagnosis may be difficult, although the subsequent development of signs of meningeal irritation and the finding of bloody spinal fluid with xanthochromia will soon remove doubt in the case of subarachnoid hemorrhage.

Concussion, Skull Fracture, and Subdural Hematoma: Headache and vomiting are the rule after any severe head injury, whether there be a fracture of the skull or merely a concussion. The late development of headache, stupor, and vomiting—days, weeks, or even months after a head injury—should always suggest the possibility of subdural hematoma.

Herpes Zoster and Intercostal Neuralgia: Herpes zoster, commonly known as "shingles", a peculiar virus infection which may involve any of the peripheral sensory nerves, is characterized by severe pain along the distribution of the affected nerve and a herpetic eruption over the skin area supplied thereby. The pain usually precedes the skin eruption by several days and may persist for weeks or months after the herpetic lesions have disappeared. When the disease involves one or more or the lower thoracic nerves which supply the abdominal wall, the severe pain during the pre-herpetic phase may simulate an acute intraabdominal condition, especially when muscle spasm or reflex vomiting are present. Careful mapping out of the area of tenderness and hyperesthesia should lead one to suspect incipient shingles, since this area will frequently extend around posteriorly all the way to the spine. This observation, along with the demonstration that the pain and tenderness are limited to the abdominal wall, also holds true for other forms of intercostal neuralgia such as may result from compression of sensory nerve roots by cord tumors, ruptured intervertebral discs, collapsed vertebrae (e.g.,Pott's disease), and arthritic excrescences on the vertebrae.

Tabetic Crises: One of the most violent manifestations of syphilis of the central nervous system is the tabetic crisis. At intervals varying from days to months, the tabetic patient may suffer attacks of violent abdominal pain, muscle spasm, and vomiting which may be so protracted as to dehydrate him. Hiccoughs are distressing in certain cases. A tabetic crisis may at first present a knotty problem in differential diagnosis from some acute intraabdominal condition. Useful points leading to recognition of the true state of affairs are a history of untreated or inadequately treated syphilis, lightning pains in the legs, paresthesias about the thorax, ataxia, Argyll-Robertson pupils, areflexia and loss of deep sensation in the legs, and a positive blood serological test. Characteristic spinal fluid changes with positive spinal fluid Wassermann test should remove the last shadow of doubt. One must always recall, however, that there is no rule against a tabetic patient perforating a peptic ulcer!

MISCELLANEOUS

Among the systemic manifestations of certain more serious *dermatological conditions*, such as acute *disseminated lupus erythematosus or erythema multiforme* for example, nausea, vomiting, and di-

arrhea may be prominent features. In the realm of *ophthalmology* vomiting frequently occurs in association with severe pain in and above the affected eye in *acute glaucoma*, a condition which is occasionally confused with migraine; rapid irreversible loss of vision may result if proper measures for relief of the increased intraocular tension are not instituted at once. Turning to the field of *otolaryngology*, one encounters the various affections of the vestibular apparatus such as *seasickness, acute labyrinthitis* (secondary to otitis media or obstruction of Eustachian tube), and *Meniere's syndrome*. Vomiting and vertigo characterize all three of these conditions, while tinnitus and partial deafness are common to the latter two. Only too often a victim of Meniere's syndrome is cursorily dismissed as a "bilious neurotic". An attack of *acute sinusitis* may provoke vomiting in addition to excruciating headache (unilateral), too easily confused with migraine.

Severe abdominal pain with board-like abdominal rigidity is common in *tetanus*, and along with signs of peritoneal irritation may be the principal finding in *arachnoidism* resulting from black-widow spider bite.

Psychosomatic and Psychotic Disorders

Last, but by no means least, is the tremendous group of psychosomatic disorders with predominantly gastrointestinal manifestations such as aerophagia, pylorospasm, spastic colon, mucous colitis, and so forth. The basic "lesion" here is in the psyche, and not in the gastrointestinal tract which merely serves as a convenient and highly "popular" outlet for excessive nervous tension. Anxiety and tension states form perhaps the most common single ailment with which the physician is confronted. The background of the anxiety and tension may be relatively simple or extremely complicated. Such factors as over-concern about health, domestic difficulties, financial worries, frustrated ambitions, excessive pressure of activity, inadequate recreation, resentments toward bosses or in-laws, and perfectionistic attitudes are among the most frequent to be encountered. The differential diagnosis between functional and organic disease of the gastrointestinal tract is extremely important and should include a very thorough survey with x-rays of the gall bladder, stomach, small intestine, and colon, stool examination, gastric analysis, and at times gastroscopy and proctoscopy as well.

A detailed social history may prove invaluable and psychiatric consultation becomes highly desirable in many cases after organic disease has been ruled out. If such a painstaking approach to the problem were carried out more frequently, many a wan and withered young housewife would be spared the loss of her appendix, gall bladder, ovaries and tubes at successive operations only to be left with her same old abdominal pain which could have readily been traced to a spastic colon resulting from her husband's pre-occupation with the blonde next door!

Then we must recall that certain of the more serious psychoses such as true depressions, anorexia nervosa, and schizophrenic states may be characterized by complete loss of appetite, stubborn constipation, and loss of weight so pronounced as to make one suspicious of carcinoma or some other serious organic wasting process.

I hope that these few remarks have served to emphasize the fact that gastrointestinal symptoms may arise from a variety of disorders located outside the gastrointestinal tract. I cannot stress too strongly the importance of studying every patient as a whole rather than focussing our attention on too narrowly a circumscribed area of the patient's body.

1020 St. Paul Street.

VIRGINIA'S NEW CORONER SYSTEM*

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Fellow members of the Roanoke Academy of Medicine: You have honored me by electing me your President for the current year. I am deeply grateful. I promise my best to make this a successful year and feel confident it will, with your help. In electing me, you also obligated me to give a Presidential Address. For this, you will have to pay the penalty. However, I assure you that I have no intention of punishing you too long.

I take the privilege of discussing with you a subject which, for sometime, I have felt might be mutually beneficial. I refer to the office of Coroner. Since the last legislature created a Commission on Post-Mortem Examinations which became effective on October 1, 1946, it is probable that all of you are not entirely familiar with its operation. The new law designates that The Post-Mortem Commission shall consist of five ex officio members as follows:

The Attorney General;
The State Health Commissioner;
The Superintendent of State Police;
The Dean of the School of Medicine of the Medical College of Virginia;
The Dean of the Medical School of the University of Virginia.

This commission is empowered to appoint a Chief Medical Examiner for the State of Virginia who is a skilled pathologist and eligible to be licensed as a doctor of medicine. He is required to take oath and enter into bond upon taking office. He is to devote his entire time to his official duties. He is the executive officer of the Commission but is not a member thereof. His headquarters are located in Richmond, Va., and there he is to set up a central office and laboratory, adequately staffed and physically equipped to properly conduct such pathological, bacteriological and toxicological investigations as may be necessary or proper.

Dr. Herbert S. Breyfogle took office early in January of this year as our first Chief Medical Examiner. During the interim from October 1, 1946, until he took office, Dr. George Z. Williams was acting Chief Medical Examiner. There is every reason to believe that when all arrangements are completed a distinct improvement in accurate statistics will result as well as making available to the medical profession complicated toxicological examinations which are not now freely available. Delay has been unavoidable, but this month a full time toxicologist is to take up his duties under Dr. Breyfogle and permanent quarters for the laboratory are now being remodeled. Under the new law all costs of the operation of the office of Chief Medical Examiner including autopsies are paid by the State. Before, these were paid by the county or city in which the investigations or examinations were made. While this change has transferred to the State, from the localities, quite a sum of money which has to be carried as a new item in the State Budget, Dr. Breyfogle tells me that he is having difficulty in obtaining sufficient funds to properly run his office. This can probably be remedied at the next meeting of the legislature. My impression of Dr. Breyfogle, after two conferences with him as well as instructions issued by him, is that he is a competent man, well trained in pathology, particularly in medico-legal matters, and will in time set up a system of which we can be proud. He deserves your support and I solicit such support for him.

The Chief Medical Examiner is the adviser and issues instructions to the coroners of the State who are appointed by the Commission on Post-Mortem Examinations. Before, they were appointed by the Court having jurisdiction. The Chief Medical Examiner has the power to appoint coroners between meetings of The Commission—to fill vacancies temporarily in the event they occur for any reason, or if in any case the coroner for personal interest is unable to serve. In such event, coroners are required to notify the Chief Medical Examiner of his unavailability.

The law requires that physicians, law enforcement officers, funeral directors, embalmers, or any person having knowledge of certain deaths shall notify the coroner. Such deaths include specifically: (1) Any death by violence, accidental, suicidal or homicidal. (2) Sudden deaths of persons in apparent

*Address of the President before the Roanoke Academy of Medicine at its meeting on October 3, 1947.

health. (3) Deaths without medical attendance, including stillbirths attended by a midwife. (4) Deaths by unusual or unnatural means, including exposure to electricity, heat or cold, starvation, neglect, poisoning or intoxication, burning, drowning, smothering, etc., whether accidental, suicidal or homicidal. (5) Deaths occurring in prison. (6) Where a dead body is to be cremated (this is a new provision.)

Another change is that all coroners shall be licensed to practice medicine. A recent interpretation of the law from the office of Chief Medical Examiner states: Physicians should report to the coroner for investigation: Deaths within 24 hours after first medical attendance, and deaths during medical procedures to determine the coroner's right to take charge of the body. Also, a physician in attendance at the time of death is required to sign the death certificate by law, irrespective of an investigation by the coroner and regardless of the cause of death and time in attendance. The new law specifically states that the coroner of the county or city where such deaths occur shall be notified and shall take charge of the body. This differs from the old law as amended in 1934 which designated jurisdiction of the coroner as the place where injury or cause of death originated.

When the coroner is notified of a death coming in the above category, it is mandatory upon him to take charge of the body, make inquiry regarding the cause of death, reduce his findings to writing and make report to the Chief Medical Examiner. Copies also are to be given to the Commonwealth's Attorney in those cases where indicated. Until authorized by the coroner the body cannot be embalmed or otherwise disturbed. This does not mean a body cannot be moved to a funeral home or other place designated by the coroner. The coroner can call upon all law enforcement officers to investigate any particular phase of his investigation and also persons especially trained in any particular field whose knowledge would be helpful in determining the cause of death.

The vast majority of cases investigated by the coroner do not involve criminal action; only about 5% to 10% are such, and here I want to emphasize that an investigation by a coroner does not often, and seldom should, carry with it any embarrassment to relatives of the deceased and certainly not to members of our honorable profession. On the other hand, facts gained often are of extreme public interest and save time and prevent civil litigations as well as expedite settlement in cases involving double indemnity in insurance and those coming under workman compensation laws. The public welfare is also protected.

If, after investigation, the cause of death is not clear and an autopsy will throw light on the particular case, a coroner has the independent right to order an autopsy. This can be done by the coroner if he is designated by the Chief Medical Examiner to perform autopsies, or he can order this to be done by a pathologist so designated. The new law is broad in scope with regard to autopsies performed in the interest of the State. In deciding whether one should be done, certain questions usually guide: (1) Will an autopsy prove essential in distinguishing accident, suicide, homicide and disease? (2) Will it prove essential in the interest of civil as well as criminal justice, or in the interest of public health and welfare—toward protection of persons unjustly accused of criminal acts; toward disclosure of medical, chemical, electrical, industrial and other hazards to health and welfare? (3) Will an autopsy prove essential in disclosing contributory causes as injuries, intoxication and disease? The coroner is required to make a complete report to the Chief Medical Examiner in all cases, and he can send for examination, to the Chief Medical Examiner, all tissues, body fluids or other material indicated for examination at the central laboratory. Instructions for the proper collection, preservation and delivery to this laboratory have been issued by the Chief Medical Examiner. As soon as possible it is the plan to run routine blood alcohols as well as barbiturates on all auto fatalities, whether the deceased be either driver or pedestrian. Later it is probable that routine tests for other drugs will be added. I predict that, in time, this will provide us with statistical data which should throw valuable light on our present alarming and horrible death toll on our streets and highways.

Over the years I have enjoyed fine cooperation of the profession and my work as coroner has been made easier, as well as profitable to me, in adding to my knowledge by contacts and advice from many of you gentlemen. I appreciate all of this. There have been cases, however, which were proper cases for investigation, which have not been reported to

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me. I am sure that in each case this was due to over-sight or misunderstanding. To cite a few might be helpful.

A man was operated on for diffuse peritonitis from ruptured appendix. He had a very stormy convalescence. Among other complications, he had bilateral thrombo phlebitis. After weeks, he was able to return home and was ambulatory in his room. One morning his wife served him breakfast and he ate this while sitting up. She removed his tray and returned from carrying this out and found him dead. This was a sudden and unexpected death of a person apparently in health or well on the road to health. His death was certified as due to coronary thrombosis, with attendance covering the entire length of his illness, and no mention of appendicitis, operation or complications. I feel sure that this was not a case that in any way involved suspicion, but if, weeks or even months later, someone had raised the question of his death, for any reason, all that I could do would have been to report to the Commonwealth's Attorney, who could request the Court to order exhumation of the body. The law requires that the coroner follow such a course.

Another instance was a recent death in a hospital of a patient who was unconscious when admitted and died without regaining consciousness. There were burns of the lips and mucous membranes and history of suicide. Permission was given by the next of kin for autopsy and this was performed by one of the residents. The body was turned over to an undertaker and embalmed. I was not notified. Both the doctor and the undertaker were in error, as each is required to notify the coroner of such a death, and neither is permitted to in any way disturb the body without the consent of the coroner.

I cite the example of a death occuring recently, according to what I read in the newspapers. A man struck by an automobile in an adjoining county died from injuries received in this way in a local hospital. The papers gave an account of his funeral and also of the trial of the driver of the car striking him. To date, I have not been notified of death of this person as required by the new law.

I could give other examples, but these should suffice. For years, I have requested all local undertakers to call me in all cases in which any doubt existed. They have done this in most instances, and, in quite a number of these, I have found that the cases were not proper ones for the coroner.

In closing, I want to make just a few suggestions. There is, every year, quite a turnover in our hospitals of internes and residents. These should be acquainted with the proper procedure to follow in deaths in which the coroner is to be notified. Too, they should be on the alert to get as much history as possible in suspected poisoning, as well as properly preserving any material which could be analyzed. In wounds, notes at the time, and before debridement or suturing could be very important, since they might have to testify. Especially important is the point of entrance and exit in penetrating wounds, noting powder burns or any foreign material. In suspected poisoning, the type of poisoning and its mode of entrance is important. As you know, blood, stomach contents, urine or any of the viscera might be necessary for analysis. The stomach contents alone are not sufficient to establish death from certain poisons and absorption must be proved. Many poisons cannot be satisfactorily demonstrated after embalming, and in chronic poisoning samples of bone, hair and finger nails are necessary at times. Remember that a coroner in the State of Virginia is a State Official and his duties are specified by law. Your continued cooperation will be appreciated. I thank you.

31 Wellington Avenue, South.

MANAGEMENT OF GASTRO-INTESTINAL BLEEDING*

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The management of gastro-intestinal bleeding is dependent entirely upon the correct diagnosis as to its site and cause. The gastro-intestinal tract may be divided into five sections and the chief causes of bleeding enumerated as follows: (1) esophagus—diverticulum, ulcer, varices, and cancer; (2) stomach—ulcer (peptic or syphilitic), gastritis, benign polyp, and malignancy; (3) duodenum—ulcer, diverticulum, polyp; (4) jejunum and ileum—diverticulum, polyp, and malignancy; (5) colon and rectum—ulceration, polyp, diverticulum, malignancy, and hemorrhoids. These remarks will be limited mainly to the treatment of peptic ulcers and bleeding from the large bowel, as these account for possibly 75% of all gastro-intestinal bleeding.

One of the most difficult types of bleeding to diagnose and treat is that from esophageal varices. In these cases the patient is usually in poor condition and the diagnosis is frequently made with some uncertainty. When there is no contra-indication, injection of the varices with a sclerosing solution gives excellent results and in careful hands does not seem to carry a great hazard. In patients who are good surgical risks, it is probably better to dissect out the varicose veins about the terminal portion of the esophagus and to ligate the coronary vessels at the gastro-esophageal junction. In peptic ulcers the treatment of bleeding depends almost entirely upon the age and the history of the patient. If the patient is under forty-five years of age and has no history of previous bleeding, the treatment should be medical, but if the bleeding is recurrent and persistent, or the patient is over forty-five years old, the treatment should be directed toward proper preparation of the patient for operation. When the patient has been vomiting large quantities of blood and appears pale, weak and apprehensive, the family usually expects some immediate heroic measures to be carried out. It is important to reassure the patient and the family, to keep the patient quiet and the well meaning friends and relatives out of the room. Mild sedation should be started, with the patient kept strictly in bed. The now popular early ambulation in these cases should not be allowed until the bleeding has been well controlled for several days. It is inadvisable to attempt to return the blood pressure to normal immediately after a hemorrhage, but a systolic pressure of 100 is satisfactory, as one higher than this would tend toward recurrence of the bleeding. With this in view, supportive measures are given which include infusions, transfusions, oxygen and sedation. As soon as possible, all such patients should be moved to a hospital, since it is impossible to give proper treatment to these cases in the home. The patient may be allowed small amounts of water by mouth, but it is recommended that feedings or medications by mouth be started only after the first 24 hours. Because these patients may have some blood dyscrasia which has not been completely worked out in the first few hours of the bleeding, it is advisable to start giving vitamin K and large doses of vitamin C. If the blood pressure is below 100, a transfusion should be given. When the transfusion is not immediately available, the blood pressure may be maintained temporarily by infusions of dextrose in Ringer's or saline and plasma until proper blood matching has been completed and a blood transfusion started.

If the bleeding continues, as it will in a small percentage of cases, it is advisable to do a gastric lavage, using large amounts of warm saline solution; for if there is gastric retention, a collapse of the stomach reduces the distention and likewise the bleeding. After 12 to 24 hours without feeding, feedings may be started in small amounts, using the regular peptic ulcer diet. It is important to keep up the high intake of vitamin C and to give a transfusion of 500 c.c. of blood every day until the blood picture returns to normal or the hemoglobin reaches 13.5 gms., r.b.c. 4,000,000, hematocrit 40 or more, and plasma protein 6.3 grams. When the blood pressure is slightly elevated, it is essential that the transfusion be given slowly, and should there be a sudden rise in this pressure, the transfusion should be discontinued. The feedings may be gradually increased and the patient then put on general medical treatment.

If the patient is 45 years of age or older, or there

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is a history of recurrent bleeding, as soon as the patient's condition permits, he should be operated upon and the ulcer or other pathology present removed. Vagotomy with the excision of the ulcer is inadvisable in a patient who has been bleeding recently, because vagotomy tends toward dilatation of the stomach and duodenum, and may prolong the bleeding. As far as possible in all cases the ulcer should be excised, no matter what type of resection is done. When the ulcer is of the penetrating type and cannot be excised, all vessels in its vicinity should be ligated and divided. A gastro-intestinal x-ray study should be made before any operative procedure is carried out, as frequently, particularly in elderly patients, it will be found that the bleeding is coming from varices and is secondary to another condition.

Bleeding from the large bowel is frequently noted. In such cases a digital or proctoscopic examination should be made. When the bleeding is from hemorrhoids, this can be easily seen by anoscopic and proctoscopic examination and controlled either by packing or operation. If hemorrhoids are the cause of the bleeding, injections of a sclerosing solution may be all that is necessary, but, on the other hand, if blood is seen through the proctoscope to be in the upper part of the bowel, it may be coming from an ulcerative colitis or a malignant growth. In such cases the bleeding is not severe nor apt to produce shock as bleeding from the first part of the intestinal tract. As soon as the patient's condition permits, x-ray examination of the colon with contrast media should be done and the treatment directed toward the bleeding area. If it is found to be due to an ulcerative colitis, the treatment is almost entirely medical; but if it is due to a neoplasm, either benign or malignant, the patient should be prepared for resection and the neoplasm removed.

Journal Debunks Seven Day "Cure".

"A simple cure for chronic alcoholism, seven day, seven week, or even seven year, does not exist," according to an editorial in the November 1 issue of *The Journal of the American Medical Association.*

"Since the publication of an article, 'Seven Day Cure for Alcoholism,' in *Magazine Digest,*" the editorial says, "*The Journal* has been receiving inquiries from both physicians and the public requesting further information and confirmation of the efficacy of the treatment proposed. . . .The treatment described is a withdrawal method, using slowly decreasing doses of alcohol intravenously over a period of six to seven days. The patients treated by the authors were those with acute alcoholic dementia, hallucinosis and delirium tremens. These patients were treated equally as successfully by the intravenous method as others have been who took decreasing doses by mouth along with other adjuvant treatment, but no more so. . . .The authors admit that this method does not produce a permanent cure of chronic alcoholism. The patients may well return to the abuse of alcohol, as they frequently do following other types of withdrawal treatment. The personality factors that cause maladjustment to environment must be determined and controlled. . . . Aside from its usefulness in withdrawal treatment, the technic seems about as illogical as the sugar treatment of diabetes or the morphine treatment of the opium habit."

HOPEFUL ASPECTS OF CARDIOVASCULAR DISEASE*

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Introduction—During the past twenty-five years the most important advances in our knowledge of cardiovascular disease have taken place, and we are now living in an age of ever increasing newer concepts and discoveries which often have actually turned back or prevented the ravages of cardiac or vascular conditions once considered entirely hopeless. This reversibility of heart disease offers a note of optimism so essential in the management of cardiac patients, to both the doctor and the unfortunate victim. Dr. Paul White[1] has said that medical history should be appreciated as the foundation of our medical instruction and the base on which our future progress must be built. It is fitting, therefore, that we mention first some of the historical aspects of this subject.

Prior to the 16th Century heart disease, as we now think of it, was unknown. The only knowledge of the heart was concerned with trauma, and damage to the heart from any cause was tantamount to death. Then with the advent of more frequent post-mortem examinations it became apparent that the heart and blood vessels were often the seat of a variety of pathological conditions. By the turn of the 18th Century heart disease was regarded by Corvisart as more common than all other ills put together, and it has certainly maintained this position even to a greater degree in modern times as life expectancy has advanced, sparing many who might have succumbed to one of the diseases of early life to suffer degenerative vascular disease. During the 19th Century many pathological abnormalities of the cardiovascular system were classically described but there was little or no clinical correlation made. Even 30 years ago heart disease was regarded as for the most part final and fatal, and the attitude was one of resignation to the arrival of the evil day, meanwhile making the unfortunate patient as comfortable as possible. During the past 25 years there have been many exciting developments in cardiology with a change in point of view concerning the hopelessness of cardiac disability.

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THYROID HEART DISEASE

In 1924 Burton Hamilton[2] observed and wrote about heart failure of the congestive type due to hyperthyroidism, and, on his advice, Lahey[3] and others began to restore these patients to good health by *sub-total thyroidectomy*. As a result, thyrotoxic heart disease is rarely seen nowadays. Similarly, at about the same time, myxedema heart was brought under control by the administration of thyroid extract, reversing dramatically the cardiac enlargement and electrocardiographic abnormalities brought about by this condition and restoring the functional capacity of the heart. Thus, less than 25 years ago, began the amazing developments in the diagnosis and management of cardiovascular disease, many of which we now take for granted. Since those early days every single variety of heart disease has—in some degree, at least—manifested its preventability or reversibility either spontaneously or under medical or surgical treatment. The latest to enter the fold are congenital and hypertensive heart disease.

CHRONIC CONSTRICTIVE PERICARDITIS

In 1928 Churchill (with Dr. Paul D. White as his medical advisor)[4] resected the pericardium of a girl 19 years old who was a hopeless invalid because of severe congestion due to chronic constrictive pericarditis. She was restored to good health within a few weeks and has remained so. She was the first of a large series of cures in about 50 per cent of the cases so operated in this country following the initial suggestion by DeLorme in 1898 and the pioneer surgery done in this field in Germany some fifteen years later.

RHEUMATIC HEART DISEASE

With rheumatic heart disease the reversibility has been largely spontaneous, yet it remains to be seen whether saturation with salicylates orally or intravenously may play a role in turning back rheumatic infection.

Our knowledge of the natural history of rheumatic infection has increased vastly and from this we have in all likelihood prevented much disability that in previous years would have occurred because of our ignorance and errors of omission and com-

mission. Not too long ago rheumatic fever was regarded as a more or less self-limited condition and with the subsidence of the acute manifestations was treated accordingly. Actually we know now that rheumatic infection can be one of the most chronic of all diseases. It may grumble along unnoticed by the child or parents for weeks or months. Even the physician, unless he is wary and mindful of the possibility, may overlook a low grade infection unless he resorts to such laboratory tests as the white blood count, sedimentation rate and electrocardiogram for confirmation. Our newer knowledge of rheumatic infection has modified the treatment so that now the rheumatic child should have prolonged sanitorium-like care with frequent follow-ups until all evidence of infection as determined clinically and in the laboratory, has cleared.

Since returning to Virginia in 1945, I have been impressed with the incidence of both acute rheumatic infection and chronic rheumatic valvular disease in private and clinic practice. It is timely that the rheumatic fever program for the State of Virginia has been extended to the western portion of the State within the past year, and clinics are now being held in Roanoke and Harrisonburg from which much valuable data will accumulate concerning the magnitude of the problem. My guess is that we will find a surprisingly high incidence. One other point which has impressed me in comparing rheumatic infection as I observed it in the New England states with that seen in this locality is the relative virulence. The infections I have seen here seem milder and might be more easily overlooked.

It is not within the scope of this discussion to say much about heart murmurs, but one very significant fact should be called to your attention concerning mid-diastolic murmurs heard at the cardiac apex in children with active rheumatic infection. At one time such murmurs were attributed to early mitral valve damage. Actually the murmurs may be due to left ventricular dilatation from the acute myocardial rheumatism which in turn produces mitral regurgitation with relative mitral stenosis. When the infection subsides, allowing the heart muscle to resume its former tone, the murmurs may and often do disappear entirely. It is wise, therefore, to defer final judgment on the extent of valvular damage from rheumatic infection until the acute phase has past.

ANEURYSMS

The surgical attack on both saccular and arteriovenous aneurysms is well known to you, and I mention them next in chronological order.

Excision or wiring of saccular aneurysms often not only abolished the hazard of the local lesion on contiguous parts but also of rupture, and we now appreciate the fact that thrombosis that occasionally occurs in aneurysmal sacs may spontaneously reduce the hazards.

The obliteration of arteriovenous communications, congenital or acquired, is often a practical necessity to relieve the strain on the heart which has resulted sometimes in considerable enlargement secondary to increased blood flow. This procedure assumed major proportions during the recent war when, in the interests of standardizing procedure under expert supervision, a center for handling such cases was established at the Ashford General Hospital at White Sulphur Springs, West Virginia, where approximately 450 cases had been done shortly before the hospital was closed. Where serious heart strain has resulted, the closure of an arteriovenous communication may be a life-saving measure. If closed early, strain on the heart may be prevented.

CORONARY HEART DISEASE

Coronary heart disease is perhaps the most important consideration of all in this chronology. It is almost unbelievable, despite all the work and writings of the pathologists during the 19th Century on the structural changes in the heart associated with serious coronary artery disease, including myocardial infarction, new and old, that so little was known clinically of coronary heart disease prior to Herrick's classical paper in 1912.[6] Before Herrick, it was currently believed that occlusion of a large coronary artery meant early death, and for sometime after Herrick's description of coronary thrombosis a long survival was not thought possible.

During the past 10 to 12 years, with a growing electrocardiographic and clinical experience and especially the clinico-pathological observations of Blumgart and Schlesinger,[7] we have become aware of the large number of cases of coronary heart disease that do well for many years after acute occlusion. The answer to this is the development, mostly spontaneous, of a collateral coronary circulation which maintains an adequate circulation to all parts of the myocardium. So we have learned that the

coronary arteries under these circumstances are no longer end arteries, though functionally they may have started as such.

Thus *Coronary Artery Disease* is not to be confused with *Coronary Heart Disease* because, with the development of a collateral circulation, even complete slow occlusion of a major coronary trunk may occur without clinical evidence of heart disease due to this spontaneous adjustment.

The various measures, medical and surgical, calculated to stimulate the development of this collateral circulation have not been very successful or practical. Such procedures as omentopexy, as suggested by O'Shaughnessy,[8] and transplantation of the pectoral muscles, as suggested by Beck,[9] have not afforded sufficiently gratifying results to warrant their wide use—not to mention the practical considerations. Nature seems to do the best job, and we should remember this while not omitting our efforts at therapy.

The recent use of anticoagulants, such as dicumarol, in the management of acute coronary thrombosis is thought by some to be of value in preventing the extension of the thrombus and in diminishing embolic complications, but here again we encounter practical considerations in the use of a dangerous drug requiring frequent laboratory determinations for the control of dosage. Nevertheless, it is one additional weapon that can be used in our efforts to turn back the ravages of coronary disease and its complications.

Some 15 years ago the outlook for the patient who presented himself with angina pectoris was four to five years. Follow-up studies by White, Bland, and Miskall[10] on hundreds of cases has changed this concept, the more recent analysis showing that the average expectation is actually doubled, being 9 to 10 years. Furthermore, they have observed that angina pectoris of effort or decubitus not infrequently subsides spontaneously with the development of an adequate collateral circulation. Severe intractable anginal pain has been controlled in many instances by alcohol injection of the sympathetic ganglia. This, of course, is purely a symptomatic measure but may be a necessary one to provide the patient with some degree of comfort. Currently it is not in very wide use.

Acute Cor Pulmonale

Ten years ago McGinn and White[11] described a new clinical entity which they called acute cor pulmonale, a condition manifested by dilatation of the right heart chambers and pulmonary artery secondary to high pressure in the pulmonary arterial system from sudden embolism. If not immediately fatal, the course of this condition may be critical for a matter of hours or days, but usually clears spontaneously unless further embolism occurs. It is such recurrence that is our duty to prevent and out of the efforts to do so has come much of our present knowledge concerning thrombo-embolic disease.

Thrombo-Embolic Disease

The menace of thrombo-phlebitis and/or phlebothrombosis in the production of fatal pulmonary embolism is almost a daily pre-occupation with many of us, but is no longer regarded as an unavoidable surgical accident. In recent years the advocates of numerous prophylactic and definitive measures in the control of such catastrophes have shown beyond reasonable question that many lives have been spared following a variety of treatments directed at the prevention of or extension of venous thrombosis.

Before referring to some of these measures in further detail, two concepts that are now pretty generally held should be reemphasized, namely, that (1) thrombo-embolic disease is just as likely to occur in the bed-ridden medical patient as in the post-operative surgical patient, and (2) although outspoken thrombotic occlusion of the leg veins carries the threat of many disagreeable after-effects, there is at this stage little danger of embolism. It is the early quiet stage, referred to by Ochsner[12] as "phlebo-thrombosis" upon which we must concentrate if tragedy is to be avoided.

It is beyond the scope of this discussion to give a complete account of the treatment of thrombo-embolic disease, or to bring you the final word on what constitutes the ideal treatment. Prophylactic and definitive treatment include such measures as deep breathing exercises, administration of thyroid extract, avoidance of the sitting or reclining positions in bed, elevation of the foot of the bed, voluntary exercise of the muscles of the extremities, anti-coagulants (heparin and dicumarol) vein interruption, and lumbar sympathetic nerve block. The present writings on this subject are somewhat controversial, and one can obtain encouraging evidence

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in favor of one or another form of therapy according to different workers in this field. Homans,[13] in his most recent summary of the subject, has this to say: "I recognize that the present trend is toward a greater use of the anti-coagulants. How far this tendency will go I am unable to say. For the moment I have offered a reasonable scheme for making use of one method or the other, observing that in some circumstances there is a choice between them. On behalf of surgery I beg that it be employed only when it is fully understood what the particular operative procedure may be expected to accomplish. I urge that the anti-coagulants be used only when accurate routine blood studies are available. Undoubtedly, as experience widens, more definite indications for the use of operative or chemical methods in preventing and treating thrombosis in the veins of the lower limbs will be available."

Irrespective of the merits of one form of therapy as against another, the figures all show a decreased incidence of fatal and non-fatal pulmonary embolism in clinical reports from the large medical centers where observers are alert to the presence of thrombo-embolic disease. We should all become more alert to this important problem and when a patient presents himself with a history of repeated attacks of pleuritic pain, among other things, we should look for signs of venous thrombosis in the legs. It will be found in proportion to the diligence with which it is sought.

MISCELLANEOUS REVERSIBLE CARDIOVASCULAR STATES

Within the past ten years a variety of other cardiovascular conditions have shown their reversibility either spontaneously or from active therapy with the subsidence of the underlying disease. These include the cardiac dilatation and failure that occurs in *acute hemorrhagic nephritis,*[14] in *avitaminosis of the B_1 type,*[15] and in *severe anemia.*[16] The once dreaded *purulent pericarditis* which before the advent of the sulfa drugs and penicillin was almost invariably fatal now may be and often is treated successfully, combining drug therapy with pericardostomy.

The story of *digitalis* in the management of congestive failure is an old one and needs no emphasis except to call your attention to the increasing use of the purified crystalline digitalis preparations, such as digitoxin (NNR), which are marketed under a variety of trade names. These preparations are reputed to be as quickly and totally absorbed when given by mouth as when given intravenously and attended by less toxicity than the whole leaf preparations. We should remember, however, that there is no such thing as a "nontoxic" digitalis. The toxic effects of digitalis are largely extensions of the therapeutic actions of the drug and if a preparation will not cause digitalis poisoning when given in excess then it will not exert any therapeutic effect. The crystalline preparations of digitalis, in my experience, have been as effective in the control of congestive failure as the whole leaf, and certainly attended by fewer gastro-intestinal symptoms. I have found them eminently satisfactory in very elderly patients who, as a rule, do not tolerate digitalis too well. There are other drugs that deserve special mention in the treatment of heart failure when digitalis has been ineffective in the control or elimination of pulmonary vascular congestion and edema, namely, the mercurial diuretics (mercuzanthin and salyrgan-theophylline). The importance of using these preparations as an adjuvant to digitalis cannot be too strongly urged. When frank edema and ascites are present, the indications are obvious, but the results of diuresis for the relief of dyspnea from pulmonary vascular engorgement when no evident edema is present are nothing short of miraculous at times. It is under such circumstances that we often neglect this important adjunct of treatment.

In line with the newer concepts[17] of the mechanism of heart failure and edema, we no longer restrict the fluid intake in edematous cardiac patients. It has been shown that in congestive failure the increased fluid in the extravascular spaces which is responsible for clinical edema is held there by an excess of sodium retained in the tissue spaces because of diminished blood flow through the kidneys and increased resorption by the kidney tubules. Therefore, the rational basis for treating edema is to rid the tissues of this excess of sodium. We approach this problem by giving diets low in sodium (sometimes with an acid ash) and promoting the excretion of sodium by acidification of the urine with ammonium chloride and the use of mercurial diuretics. When there is no longer an excess of sodium in the tissues, water can be taken as freely as desired without danger of its accumulation as edema. It is well to remember that simply the restriction of

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salt (sodium chloride) alone is not adequate to insure a low sodium intake. Some patients will never touch salt, but if not forewarned will use soda bicarbonate freely for indigestion, eat soda crackers, or ingest other substances high in sodium content.

SUBACUTE BACTERIAL ENDOCARDITIS

In 1939 a combined study[18] of 250 cases of *subacute bacterial endocarditis* occurring in various Boston hospitals over the preceding 12 years revealed only one recovery, and he died of another illness one year later. Then, eight years ago the sulfonamides came into general use, and the percentage of cures began to rise from less than 1 per cent to perhaps 5 per cent or more. With the subsequent use of massive doses of penicillin the percentage of cures has steadily risen, offering new hope and marking another milestone in the control of a highly fatal and dreaded disease. The use of heparin or dicumarol with penicillin in the treatment of subacute bacterial endocarditis is not only unnecessary, but contraindicated.[19]

CONGENITAL HEART DISEASE

Nine years ago (1938) Robert Gross, of Boston, successfully ligated a *patent ductus arteriosus* in a girl aged 7½ years.[20] Since then many such cases have been operated upon by thoracic surgeons all over the country with gratifying results.[21] These results include, first, the relief of strain on both ventricles which is the cause of cardiac disability in this condition, and, second, the prevention or cure of complicating streptococcus viridans endarteritis with or without sulfa drugs or penicillin. In this operation we have the first successful demonstration of the reversibility of congenital cardio-vascular defects except for the extremely rare instances of spontaneous recovery where thrombosis has resulted in closure of a patent ductus arteriosus. White[1] mentions two instances in which this occurred. This operation is not to be entered into lightly, but when one compares the risk of a greatly foreshortened life from early heart failure or a streptococcus viridans endarteritis with the low operative mortality and the splendid results that have been attained thus far, then the risk involved seems small as against the possible benefits to be derived. Porter[22] in a recent report on 16 cases in which ligation of the patent ductus arteriosus was done by Dr. Bigger, of Richmond, Virginia, urges that the operation be done when possible before the patient begins to show signs of considerable myocardial strain as manifested by cardiac hypertrophy and increasing dimunition of cardiac reserve. It is difficult to say with certainty just what is the optimal age for operation because the degree of strain is more or less directly proportional to the degree of patency. In generalizing, Dr. Porter suggests 8 to 10 years of age as perhaps the optimal time, certainly no later than age 15. The oldest patient in his series, who also happens to be a patient of mine, was a woman aged 31, whose existence was rapidly approaching that of cardiac invalidism, but who is now, following her operation in August 1946, in good health and able to indulge in physical activities that were impossible for some years before operation.

More recently (1945) Gross[23] has developed an operation which has been successful in the relief of coarctation of the aorta. He advises excision of the stenotic area with direct anastamosis of the proximal and distal portions of the aorta. Experience with this operation is as yet quite limited, but it offers another hopeful means of combating the hazards attending this condition which include (1) aneurysmal dilatation above or below the area of coarctation; (2) dissecting aneurysm; (3) rupture of the aorta; (4) streptococcus viridans endarteritis at the site of the lesion, and (5) severe hypertension in the upper portion of the body.

Two years ago Blalock and Taussig[24] reported an ingenious procedure for short circuiting the circulation in cases of congenital heart disease with considerable degrees of pulmonary stenosis by anastamosing the subclavian or innominate artery to the pulmonary artery. Their results have been most encouraging, but since they are replacing a very serious malformation with a less serious one, it is not to be expected that entirely normal conditions will be attained.

They say that "abnormalities which should be benefited by this operation are the tetralogy of Fallot, pulmonary atresia with or without dextroposition of the aorta and with or without defective development of the right ventricle, a truncus arteriosus with bronchial arteries, and a single ventricle with a rudimentary outlet chamber in which the pulmonary artery is diminutive in size. (The operation is indicated only when there is clinical and radiologic evidence of a decrease in the pulmonary blood flow.) The operation is not indicated in cases of complete transposition of the great vessels or in

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the so-called 'tetralogy of Fallot of the Eiesenmenger type,' and probably not in aortic atresia. It must be emphasized that the operation should not be performed when studies reveal a prominent pulmonary conus or pulsation at the hili of the lungs".

Although their successful cases have shown marked improvement in the degree of cyanosis, in exercise tolerance, and in their general condition, complications have been quite numerous, but one might anticipate this in view of the greater disturbance in the physiology of the circulation than one finds, as a rule, in patent ductus arteriosus.

HYPERTENSIVE HEART DISEASE

Several years ago Dr. Paul White,[25] in interpreting the routine electrocardiograms at the Massachusetts General Hospital, began to notice improvement in the appearance of the abnormal electrocardiograms of many of the hypertensive cases and at times a complete return to normal. On inquiry, he discovered that the cases showing these striking changes were invariably those on whom Smithwick had performed his technique of dorso-lumbar splanchnic resection. In the meantime a large series of carefully studied cases in which splanchnicectomy has been performed have in many instances shown (1) a decrease in heart size, (2) disappearance of symptoms and signs of left ventricular weakness, such as dyspnea, gallop rhythm, accentuation of the pulmonic second sound, and pulmonary rales, (3) recession of eye ground changes, and (4) improvement in kidney function. In so far as I can discover no other form of therapy for hypertension has ever been able to alleviate or turn back the cardiovascular changes of this disease to such a degree.

This operation in its early development showed little promise, but now with the more extensive denervation both above and below the diaphragm (usually from D-8 to L-2 inclusive and always the great splanchnic nerve) the success in appreciably influencing the blood pressure and thereby relieving the strain on the heart has been noteworthy and the results are holding in some instances now for a matter of years. In general the results have been more encouraging in women than in men.

Though ideally the operation is carried out before too much damage to the heart and arteries has occurred, the very finding of wear and tear changes of a hypertensive nature is actually an indication rather than a contraindication for the procedure provided the operative criteria are otherwise established. It is beyond the realm of this discussion to enumerate the criteria now currently in use upon which the advisability of operation is determined. They can be found in Smithwick's[26] reports on the subject. In so far as preliminary pre-operative studies are concerned, they can be made for the most part by the patient's local physician, and, in view of crowded conditions in the medical centers where this operation is being performed, I would urge that this be done more frequently. Thus the patient will be saved some time and expense, the period of hospitalization away from home will be reduced, and the number who need the operation can be materially increased.

Smithwick's original policy was to confine the procedure more or less to younger individuals with, as yet, relatively little cardiovascular damage. However, the pressure from all quarters for possible relief from the effects of hypertension has necessitated its use in an increasing number of individuals in the fifth and even the sixth decades of life, and in some who were distinctly not good risks. Others[27] are more enthusiastic about the operation as a palliative measure and suggest its wider use in advanced cases and in more elderly patients. It would be deplorable if this operation, which has helped so many, should fall into disrepute through frequent failures and the complications that so often arise in poor risk patients.

Without detracting in any way from the encouraging results of splanchnicectomy, I would like to sound a note of caution about recommending the procedure too lightly. The patient must be hospitalized for a minimum of 30 days, often longer, for the two stage operation. Convalescence may be prolonged and tedious, extending over a period of several months (3 to 6), and with changes in posture attended by acceleration of the pulse, dizziness, faintness, and other manifestations of vasomotor instability during which time it is necessary to wear abdominal supports and bandages on the legs. Patients must also be warned of the possibility of painful scars and neuritis as post-operative complications. One of my patients who was operated upon in October, 1946, often rebukes me for not having warned her of all the distressing after-effects despite the fact that she is now satisfied with the result of her sympathectomy.

Before leaving the subject of hypertension some

mention should be made of the recent use of tetraethylammonium bromide in peripheral vascular disease wherein its efficacy has been demonstrated in producing blockade of the autonomic ganglia to a degree comparable to that obtained following the usually accepted methods of producing a sympathetic block (including paravertebral sympathetic block, local nerve block, spinal anesthesia and sympathectomy). It has proved satisfactory in producing both improvement in circulation and in the amelioration of pain of circulatory origin. Its use in hypertension is attended by a fall in blood pressure and we may look forward to further reports in the near future concerning its use both as a therapeutic test agent and perhaps in actual treatment of hypertensive states. The drug is not yet available for general use.

PSYCHOSOMATIC CONCEPTS OF CARDIOVASCULAR DISEASE

Under the new heading of psychosomatic medicine, we now describe an approach to the patient which in former years came under the vague designation of the "art of medicine" or just plain "common sense", and was typified by the relationship of the old family doctor to his patients who were usually his intimate friends, and whose emotional and physical peculiarities were familiar to him from the cradle to the grave.

Almost every day in practice we see patients who, because of chest pain, shortness of breath of the sighing type, palpitation, knowledge of an insignificant heart murmur, fatigue, or vasomotor instability, are suffering from an anxiety state about the heart, which, though it has no "organic" basis in fact may be totally incapacitating. If we are to help these patients to understand the emotional background of illness, we must do more than slap them on the back and admonish them to "forget it". A careful history and physical examination supplemented by whatever other studies are indicated will frequently establish the background of psychotherapy and, if the disorder is mild, simple reassurance may be all that is necessary. Once you take away the fear of heart disease, the patient is afforded a great measure of relief and can live a little easier. Anxiety in relation to the normal heart is very important, but even more so in relation to actual heart disease because the same burden of anxiety that is well tolerated for years in those with normal hearts will hasten a breakdown in the patient with heart disease. The watchword, therefore, in the management of the cardiac patient with a superimposed psychoneurosis of the anxiety type is an incorrigible optimism which gives hope and encouragement as to the future. This attitude must also be instilled into attendants, who, if gloomy and apprehensive in the presence of the patient, may do immeasurable harm. The experience of all of you, I am sure, has included many instances in which a little extra time spent in reassurance and friendly interest has lifted a load of despair that has arisen from fear, anxiety, and lack of understanding by the patient of some insignificant symptom or sign.

SUMMARY

Thus, in reviewing most of the outstanding advances in the management of cardiovascular disease that have occurred during the past twenty-five years, it is apparent that the cardiac invalidism so hopelessly pronounced and accepted in former years can now in many instances be prevented entirely or modified to allow reasonable every day activity to the individual with heart disease. New drugs and surgical techniques have been responsible for a large measure of this accomplishment, but we must remember that nature does much of the repair work and recognize this as an advance in our knowledge and understanding of cardiovascular disease.

It is surprising that with the small per capita funds available in this country for the study of cardiovascular disease that so much has been accomplished. The stimulation of a wider public interest such as has been shown in infantile paralysis and cancer is necessary to bring home the magnitude of the problems that still lie ahead. Most important of these have to do with the underlying causes of heart disease, such as rheumatic infection, hypertension, and presenile coronary artery disease. Since our ultimate goal in cardiology, as in all fields of medicine, is prevention, it is obvious that our main efforts must be directed along these lines. It is encouraging that legislation is now being considered in Congress to provide funds for the more extensive study of our greatest killer, heart disease.

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RHABDOMYOSARCOMA: CASE REPORT WITH RESPONSE TO ROENTGEN THERAPY

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The scant literature on rhabdomyosarcoma offers little conclusive information concerning the degree of radiosensitivity of that tumor. General statements are made by Ewing and by Khoury and Speer (1944) that, although radioresistance is the rule, cellular tumors of undifferentiated type may be radiosensitive especially in children. Mandeville (1943) reports a two year arrest in a 21 year old man of axillary rhabdomyosarcoma with surgical excision and x-ray therapy. However, this patient is known to have developed recurrence of the tumor at a later date with a survival of six years. Frank, Enfield, and Miller (1936) report a three year survival of rhabdomyosarcoma of the neck, with radical excision and radiation therapy. Gilbert (1934) states that deep x-ray therapy may control the tumor temporarily, especially in patients over 40 years of age, and reports several patients so controlled for from two to six years. Viets and Wittenberg (1945) report a case of rhabdomyosarcoma involving the spinal column and cord in which 1200 r over the region in divided doses relieved the pain for one month.

Hunt (1943), reporting on rhabdomyosarcoma of the urinary tract, states, "Indeed, in one of the reported cases as well as in the second case presented here, roentgen therapy seems to have stimulated the growth of the tumor. Since the evidence is so strongly against these tumors being radiosensitive, one must conclude that roentgen therapy is definitely contraindicated. Such therapy has only increased the patient's symptoms."

Smith and Mintz (1938) also conclude, "The meager evidence at hand tends to prove that rhabdomyosarcoma is very radioresistant."

Because of the few conflicting reports showing the response to radiation of rhabdomyosarcoma, the following case is considered worthy of presentation.

A 13 year old male negro was admitted to the hospital in March, 1944, with complaint of pain in the left hip since a fall two months previously. Clinical and roentgen diagnosis of slipped femoral epiphysis had been made. An open reduction and bone graft were done and a cast applied. Some pain persisted in the left hip, and radiogram on January 1, 1945, showed atrophy of the head of the femur and poor union of the graft.

In March, 1945, the patient complained of marked pain in the left hip of one week's duration. He was admitted to the hospital again for incision and drainage of what was thought to be an abscess in that region. Biopsy taken at the time of the incision and drainage showed rhabdomyosarcoma. A roentgenogram of the chest was negative for metastases. In April, 1945, x-ray therapy was given to the left hip through two 20 x 20 cm. portals with total air dose of 2400 r, in 200 r daily doses. The factors used were 200 Kv., 20 ma., 50 cm. distance, Thoreus filter, HVL 1.0 mm. Cu.

In March, 1946, the patient was again admitted to the hospital with complaints of gradually progressing pain over the anterior chest, dyspnea, orthopnea and ankle edema. He was in poor clinical condition with hemoglobin of 58 per cent. A chest film showed extensive bilateral pulmonary and mediastinal metastases with pleural fluid (Fig. 1). Thoracentesis was performed and 500 cc. of blood tinged fluid was aspirated. Blood transfusions and other supportive measures were instituted.

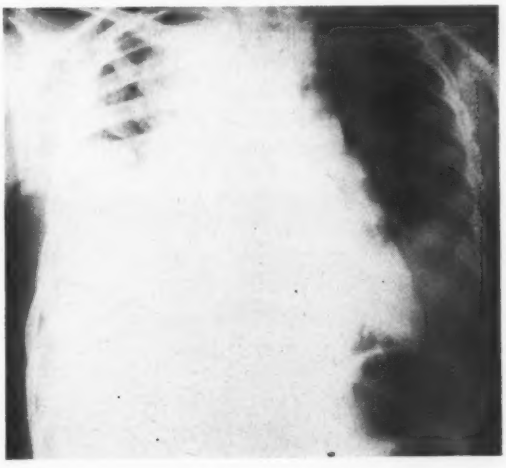

Fig. 1.—Roentgenogram of chest showing metastases before radiation therapy.

Radiation therapy was given to the chest through 20 x 20 cm. anterior and posterior portals with total of 1000 r in air to each portal. The same factors as given above were used. The situation was considered hopeless, with no immediate improvement in the almost moribund condition of the patient, and arrangements were made through Social Service for terminal care.

Contact was lost with the patient until August, 1946, when he returned to the tumor clinic. At that time he looked remarkably well, and had been going to school and playing as normally as his one crutch and slightly shortened left leg would allow. There were no complaints. Roentgenogram of the chest showed remarkable clearing of the lungs with only two small nodules, one cm. and four cm. in diameter, remaining at the right base. This unusual response of a radioresistant tumor led to critical reexamination of the biopsy by five experienced pathologists, with the idea that the previous diagnosis had been in error. However, all five concurred in their impression that this tumor was a rather typical rhabdomyosarcoma.

Further deep x-ray therapy was given to the chest with totals of 650 r in air anteriorly and 450 r posteriorly. One month later another series of 600 r anteriorly and 400 r posteriorly was given.

In October and November, 1946, radiographic examination of the chest showed no marked change and the patient remained clinically well. At one of his regular tumor clinic visits in November, routine physical examination showed a left lower quadrant mass, firm and non-tender, fixed to the rectus muscle. He was admitted to the hospital where the mass was removed from its attachment near the lower end of the left rectus sheath. Examination of microscopic sections by a number of pathologists verified the diagnosis of rhabdomyosarcoma. One observer favored fibrosarcoma but the overwhelming opinion was in favor of the former.

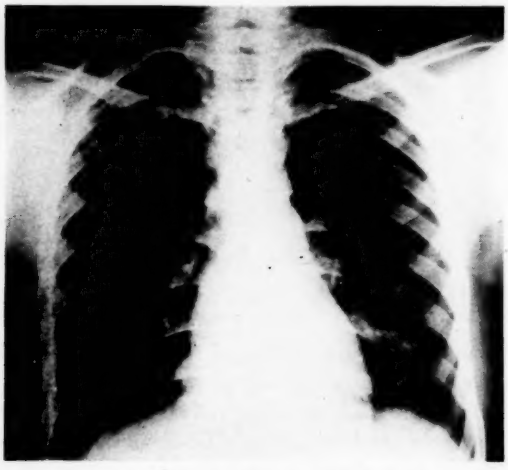

Fig. 2.—Roentgenogram of chest showing remarkable clearing after radiation therapy.

Roentgenograms of chest and hip at this time showed no evidence of progress of the tumor growth, with only a single nodule, 3.5 cm. in diameter, at the right cardio-phrenic angle. The patient was discharged in clinically good condition.

Chest film in February, 1947, again showed clear lungs except for the single unchanged nodule at the right base (Fig. 2). The patient was still in good condition, and had no complaints.

SUMMARY

The scant literature on rhabdomyosarcoma is reviewed. A case of rhabdomyosarcoma of the hip is presented with extensive metastases to mediastinum and throughout both lungs, which regressed markedly after deep x-ray therapy to the chest. There was associated clinical improvement from an almost moribund condition to one of normal appearance and activity. Satisfactory condition was maintained despite removal of a similar tumor mass from the lower abdominal wall. Deep x-ray therapy was given to the primary site with no evidence of further growth of the tumor in this region. The patient is alive and feels well almost three years after his first admission to the hospital, and almost two years after the diagnosis was established.

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THE USE OF ANTI-CONVULSIVE DRUGS*

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The treatment of convulsive seizures has been a problem since the dawn of history. The majority of convulsive seizures with which the physician has to deal are of unknown etiology, the largest group being the various types of idiopathic epilepsy. The treatment, therefore, is symptomatic. Of the many forms of symptomatic treatments, drug therapy is the most effective.

The history of modern pharmacologic treatment of convulsions began about the middle of the last century with the discovery of the action of bromide on the central nervous system. It has been said that Sir Charles Locock first recommended bromide therapy for epilepsy in 1857 on the basis that since many cases of epilepsy were thought to be caused by onanism and that since bromide was known to act as an anaphrodisiac it should logically follow that bromide would help epilepsy! Bromides remained the physicians' mainstay in the effort to control convulsive seizures until 1912 when phenobarbital was introduced by Hauptmann, for the symptomatic treatment of epilepsy. It is the only member of the barbiturate group effective for this purpose (control of epileptic seizures). The next great advantage in anti-convulsive drug therapy came with the introduction of dilantin sodium (sodium diphenyl hydantoinate) by Merritt and Putnam in 1938. In recent years several other drugs such as dl glutamic acid hydrochloride, tridione, sodium diphenylene hydantoin and mesantoin have been reported as valuable in the treatment of convulsive seizures.

Before proceeding with the discussion of the individual drugs used in the control of epileptic seizures, perhaps we should mention the problem of the control of convulsions occurring in such conditions as: tetanus, eclampsia, status epilepticus, general paresis, cerebral hemorrhage, cocaine, strychnine and picrotoxin poisoning. The barbiturates are extremely valuable in this field. The barbiturates with short or moderate duration of action are preferable and they are given either intravenously or intramuscularly. The amount given is more important than the particular drug selected. Only enough should be given to control the seizures because when the convulsions stop the patient may sink into a deep coma if more drug than necessary has been used. Usual doses for intravenous administration are sodium phenobarbital 0.3 to 0.7 gram (5 to 11 grains), the drug of choice; sodium pentobarbital 0.3 to 0.5 gram (5 to 8 grains); and sodium amytal 0.4 to 0.8 gram (6 to 12 grains). The injection should be made slowly (not over 30 to 70 mgm.—½ to 1 grain per minute). The drug may be repeated as indicated by the patient's condition and response to therapy. In status epilepticus if all efforts to control convulsions by intravenous medication fails, resort to ether may be necessary.

Perhaps the two most useful drugs at the present time in the treatment of epilepsy are phenobarbital and dilantin sodium. Phenobarbital is given in doses varying from ½ to 1½ grains administered sufficiently often to control seizures. Frequently failure to control seizures with it is due to insufficient dosage. Epileptics can often tolerate doses up to 9 or 10 grains daily. Among the toxic reactions to the drug are dermatitis, apathy, drowsiness, sluggishness, mental dullness, irritability and asthenia. Drowsiness, asthenia and dullness are probably the most disturbing of the side effects. However, when we consider its widespread use, phenobarbital causes toxic reactions in surprisingly few patients. Reports on its efficacy are hard to evaluate and range from 30 to 80 per cent. Phenobarbital often produces its best results when combined with dilantin sodium or bromides. Amphetamine sulfate (benzedrine sulfate) or dexedrine in doses of 5 or 10 mgm. twice daily are often helpful to combat the drowsiness caused by phenobarbital.

Dilantin sodium (sodium diphenyl hydantoinate) has the marked advantage that it does not produce a sedative effect and its users are free from drowsiness and let-down feeling which so often follows the

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prolonged use of phenobarbital and bromides. It is most effective when given in doses just short of the toxic dosage for the individual case. This dosage must be worked out individually. It is given in doses of 1½ or 3 grains usually, 3 or 4 times daily, and at times larger doses may be given. Children may be started on 1½ grains once or twice daily and the subsequent dosage adjusted according to therapeutic response. Very young children are started on ½ grain twice daily. It should be given at times of day when the seizures are most frequent. If dilantin is being given a patient in place of phenobarbital or bromides the latter drugs should be withdrawn gradually over a period of 3 or 4 days in order to give the dilantin time to take effect. As a matter of fact the abrupt withdrawal of phenobarbital at any time is apt to result in convulsions in an epileptic. It is estimated that convulsions are relieved in about 60 per cent of patients treated with dilantin. It is frequently most effective when used in combination with phenobarbital or bromides, preferably phenobarbital. It has been found that in such cases full doses of each drug are usually necessary. Dilantin's greatest field of usefulness is in the control of grand mal and psychic equivalent attacks. It is less effective in petit mal. Toxic symptoms that have been reported are: gastric distress, vertigo, staxia, tremor, blurred vision, diplopia, nausea, irritability, hypertrophy of the gums, dermatitis and purpura. Side reactions usually disappear promptly when the drug is discontinued. Nausea and other gastric distresses may be avoided if dilantin is given at meal time. If on renewal the same symptoms appear, the drug should be permanently discontinued. At the neuropsychiatric out-patient clinic of the Medical College of Virginia where dilantin has been used for approximately 7 years, a few toxic reactions other than mild hypertrophy of the gums and skin rashes have been noted.

Bromides are still useful in some cases but have been largely replaced by other drugs because of their greater tendency to side effects than in most of the other drugs used in the treatment of epilepsy. Some cases respond to bromides where other drugs fail. They are also valuable as a change when tolerance has developed to other drugs. Bromide may be used in form of sodium, potassium or strontium bromide or combination of them. The dosage varies from 10 to 15 grains three times a day—larger doses may be necessary. A blood level of from 150 to 200 mgm. is usually necessary to keep a patient free of attacks. As high as 71.7 per cent remissions of attacks have been reported. Toxic effects include skin rash, drowsiness, mental symptoms of depression, delirium, delusions, hallucinations, etc. Bromides are contra-indicated in patients with tuberculosis for the same reason that iodides are contra-indicated (cause resolution of healing lesions, sometimes resulting in reactivation of a dormant lesion). They should be used cautiously if at all in individuals with advanced arteriosclerosis, debilitation, diarrhea, vomiting, poor chloride intake, poor renal function, and in certain psychiatric disorders, particularly depression. They should not be used unless the patient can be followed closely. There are certain people who are apparently susceptible to small doses of bromides and it is not infrequent to see a confused, mildly disoriented individual, exhibiting psychic manifestations, in whom a high bromide blood level is determined as the actual factor of the psychotic episode. When bromides are taken over a long period of time the blood bromide level should be watched carefully.

dl-Glutamic acid hydrochloride has been reported as valuable in treatment of petit mal seizures. It is given on the basis that petit mal attacks respond favorably to fasting and the ketogenic diet and represents an effort to produce acidosis without the difficulties of a ketogenic diet. It is given orally in doses of 4 gms. three times a day which maintains the pH. of the urine at about 5.0. In our hands glutamic acid has not been a very successful drug in the control of petit mal. The large amount of drug which has to be given is a difficult problem in itself, particularly with children, and we have not felt that our results have been worthwhile. Therefore, glutamic acid has not been used for sometime.

Tridione (trimethyloxazolidine dione) has recently been found to be very effective in the treatment of petit mal attacks. The dosage is from 15 to 30 grains daily, given in 5 grain capsules. Lennox reported (the *American Journal of Psychiatry*, 103; No. 2, Sept. 1946) 84 per cent of 150 patients improve. Of these 33 per cent were free of seizures, 30 per cent had ¾ less seizures and 21 per cent were moderately improved. However, the side effects are more frequent and sometimes more severe than those encountered with phenobarbital or dilantin. They are skin lesions, photophobia, irritability, anorexia, and

aplastic anemia (3 cases have been reported). The blood of patients taking tridione should be examined at frequent intervals to determine the platelet count and the leukocyte and differential counts. We recently reported the death of a young child with aplastic anemia following the use of tridione and diphenylene hydantoin. The article will very likely appear in print in the near future.

Any discussion of the anti-convulsant drugs would be incomplete without mentioning some of the dilantin-like drugs recently developed and now being tried clinically. Outstanding among these drugs are methyl phenyl ethyl hydantoin (mesantoin). Methyl phenyl ethyl hydantoin and phenobarbital (hydantal), and sodium diphenylene hydantoin.

Mesantoin in a clinical trial by two observers seemed of little or no value in petit mal attacks but in grand mal or psychomotor seizures it was effective and superior to dilantin in about ⅓ of the cases. The main benefits of mesantoin seem to be a reduction in the frequency of seizures and an absence of the unpleasant side effects of dilantin. It did, however, produce its own side reactions and the most frequent of these was a generalized measles-like rash. Other side effects infrequently seen were excessive fatigue, drowsiness, gastric symptoms and ataxia.

The development of *hydantal* was prompted by the successful use of dilantin and phenobarbital but it was hoped that this combination would be equally effective but less toxic. Loscalzo (*The Journal of Nervous and Mental Diseases,* **101**; No. 6, June 1946) reported a series of 17 patients treated with hydantal for a period of 16 months. Grand mal seizures were reduced approximately 60 per cent and improved emotional status was noted consistently. Its effect on petit mal attacks was parallel with that of dilantin. The incidence of side effects as compared with dilantin was strikingly low. Mild gum hyperplasia occurred in but two cases. No other toxic effects were observed. Further studies are indicated.

Sodium diphenylene hydantoin is not yet on the market but Fabing, Gayle, and Hawkins, after clinical trial, feel that its advantages so far noted justify further intensive study. Factors brought forth by their study were (1) The dosage is approximately 4 times that of dilantin; (2) dermatologic reactions occurred in about the same proportion with both drugs but the other toxic reactions sometimes seen with dilantin were not noted; (3) Sodium diphenylene could be used as an adjuvant to dilantin especially when it was found that a patient could not tolerate a therapeutic level of dilantin. In these cases the dosage of dilantin was slowly reduced and the remainder of the anti-convulsant required was supplemented with the diphenylene. All reactions observed with dilantin disappeared on this regime. One definite advantage of this new drug over dilantin is that it is definitely less toxic and, therefore, larger doses may be used. A further study will be made with this drug before it is likely to appear on the market.

In conclusion perhaps it is in order to point out a few general principles which should be followed in the drug therapy of convulsive seizures:

(1) All drugs now in use may produce toxic side-reactions. Therefore, all patients on drugs must be followed closely.

(2) Patients often develop a tolerance to the most effective drugs. Consequently it is frequently necessary to change the dosage or to substitute other drugs. Substitution of one drug for another should always be done gradually to prevent the precipitation of attacks by too rapid withdrawal.

(3) The time of the administration of the drugs should be determined by the time when seizures are most frequent. For nocturnal attacks the drug should be given chiefly late in the day and at bed-time.

(4) Drugs when given should be given in sufficiently large doses to control the seizures if possible. The tolerance of the epileptic is usually high.

(5) When a patient is under control the drug should be continued indefinitely unless good reasons are found for changing it. These include tolerance, the development of side reactions or freedom from seizures. Dosage should not be decreased until the patient has been free from seizures for a long period probably at least two years. Then it may be decreased cautiously and gradually.

XUM

BRUCELLOSIS (UNDULANT FEVER)

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The knowledge of brucellosis has been acquired rather slowly during the past half century. The erroneous idea of its low incidence seems to account for the lack of attention accorded it until recent years. With more accurate methods of diagnosis the disease is being recognized by more clinicians and proven cases are increasing daily. The work of numerous reliable investigators has contributed unmistakable evidence that the disease is far more prevalent than the reports of many State Health Departments would indicate. Many patients with unconfirmed tuberculous, typhoidal, and malarious-like illnesses have later been shown to be suffering from brucellosis. More recent findings among investigators reveal that the chronic form is more common than the acute disease and it is now becoming recognized universally as a major health problem.

Brucellosis is common in man in areas where the infection is common in the domestic animals. The most common source of the disease is in unpasteurized dairy products, although other means of infection are common. It is frequently seen in farmers and veterinarians. Many laboratory workers have contracted the disease while working with brucella.[1] Carpenter and Boak[2] isolated brucella abortus by guinea pig inoculation from the purulent exudate of a horse with fistulous withers. Two children who had contact with the horse developed the disease with severe manifestations. The disease is generally more prevalent in dairy than in beef cattle. Tests carried out on 11,858,859 cattle revealed that 38 per cent of the herds and 8 per cent of the cattle were infected.[3]

Man may be infected by strains of three types of brucella: 1. Br. abortus (bovine), 2. Br. melitensis (goat), 3. Br. suis (swine). Cattle may become infected with brucella suis, the more virulent strain for man. In fact, cross infection of all these animals has been shown. Direct transmission between human beings has not been demonstrated. Evidence, however, that maternal infection can be transmitted to the child in utero or in the process of delivery has been shown.[4] The infective power of the organism is clearly demonstrated by an epidemic of Br. melitensis infection, in which approximately eighty cases and one death resulted.[5] The organisms are resistant to refrigeration. They have been found alive in milk after ten days and in butter after four months' refrigeration. Direct sunlight kills the organisms.

The incubation period may vary between wide limits. Findings of wide variation are reported among numerous investigators and frequently the actual onset of illness cannot be established. The incubation period seems to vary with the source and amount of infection acquired. Initial infection may occur months before clinical manifestations appear. The symptomatology is so variable that one has only to see a few cases or review case histories of the disease to become thoroughly convinced that a concise outline of its clinical manifestations is impossible. This is especially true in the chronic type of the disease.

The work of Dr. Harris,[6] published in 1941, emphasized chronic brucellosis to be far more common than ever supposed. He maintains the disease can and does simulate practically every other disease and rivals syphilis in its protean manifestations.

The disease has been divided into several types by some clinicians but for practical purposes it seems necessary to divide it into only the acute and chronic types since many patients will not fit into any fixed clinical picture.

The acute form adheres more closely to the text-book descriptions of the illness and probably accounts for the fact a large majority of cases recognized in the early history of the disease were of this type. The onset of the symptoms is frequently gradual, but sudden onset with chills and high fever is not uncommon. The fever may reach 103 to 105 while the appearance and degree of prostration of the patient is very deceiving. It is not unusual to see patients walking around or working when the temperature is elevated to 103. Dr. Harris[6] reported that several of his patients elected to come to his office with elevations of temperature ranging from 103° to 105° F. The patient may be afebrile in the morning with only mild manifesta-

tions followed by gradual elevation of temperature and intensification of symptoms in the afternoon and evening. Drenching night sweats with either frank chills or chilly sensations are very common. These episodes are not always confined to night, as I have found from personal experience. Following such defervescence a temporary sense of well being is experienced. The peculiar fetid odor of the perspiration has been noted by so many patients and physicians that it would not be far wrong to say it is characteristic of the disease. This chain of symptoms may occur daily, resulting in weakness, loss of weight, secondary anemia, irritability and frequently mental depression. The symptoms may persist two to three weeks or continue for an indefinite period of several months or years especially when it lapses into the chronic stage. Dr. Harris has observed the chronic stage may follow the acute or it may precede it by weeks, months, or years. Some patients may apparently recover completely following one attack or this may be followed by one or several episodes with complete or partial remissions between.

Frequently there is an absence of physical findings. This is especially true in the chronic form. An enlarged spleen and enlargement or tenderness of liver should always bring to mind the possibility of brucellosis in the differential diagnosis. Involvement of the lymph nodes with slight to moderate enlargement of the axillary, cervical, and inguinal nodes is not uncommon. These findings are more apt to be found in an acute case as the course progresses and are seldom encountered in chronic cases in which there is no history of an acute episode. An interesting case illustrating many characteristics already mentioned is that of a twenty-eight year old officer in the Army Air Corps who gave me the following history.

"The first of January, this year, I knew something was wrong because I felt tired all the time. I didn't feel like doing a thing but just kept pushing myself." He felt fairly well in the morning and thought perhaps this was due to working hard. It was not unusual to put in as many as eighteen hours a day. By the end of January he began to feel chilly all the time and said, "I just couldn't get enough clothes to keep warm." The first week in February he developed a sore throat with fever 101°. He was told he had "grippe", and after ten days was discharged afebrile from the hospital. Returning to duty he felt worse, and his appetite became poor. He continued to experiance chilly sensations but had no frank chills. He states, "I thought I was weak from having the 'grippe' and didn't bother to report on sick call." On his way over-seas in March he had another sore throat with elevation of temperature—101°—which returned to normal in forty-eight hours. After arrival over-seas he continued to feel tired and weak. He related how he would limp around a few minutes after a flight to loosen up his legs. On June 10th, he developed a sore throat accompanied by a slightly productive cough. He was admitted to hospital with fever 103° and diagnosed as having atypical pneumonia. He was treated with one of the sulfa drugs and after six days remained afebrile. During the febrile period his temperature ranged from normal in the morning to 103° in the afternoon and evening. He was discharged after ten days having remained afebrile for four days. He states he felt so weak that he returned to the hospital the same day and his temperature was 99°. In the morning it was again normal and remained so for 10 more days when he was again discharged. He was instructed by his flight surgeon to keep a record of his temperature for a while. For several weeks he felt better but continued to feel tired. On July 20th, following a flight, his temperature rose to 103 and he developed a severe headache. Following a restless night his temperature was 104.8. He immediately reported to his flight surgeon and was sent to the hospital. He walked into the hospital with temperature 105, pulse 120, and weight 213 pounds, as recorded on his chart. The only positive physical finding recorded was enlargement of the spleen. For fourteen days his fever varied from 98.6 in the morning to 104 in the afternoon and evening. He had numerous frank chills followed by drenching sweats. He lost twenty-eight pounds in seven days. Spinal puncture revealed nothing abnormal. Malarial smears were negative. Blood studies revealed moderate leukopenia with 54 per cent lymphocytes. Repeated counts confirmed a moderate leukopenia with lymphocytes ranging from 44 to 54 per cent. Total white count varied between four and six thousand. Brucellosis was suspected and comfirmed by a high agglutination titre. After fourteen days his fever dropped to nor-

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mal following a drenching sweat and he has had only an occassional rise of 99 to 99.4 since. Several days following the fall in temperature he developed rather severe symptoms of myositis in arms, legs and back. There were no swellings or x-ray findings. These symptoms subsided in about two weeks and have not returned. He arrived in the states August 30th. A skin test in October resulted in a moderate reaction with temperature rise to 99.4. The induration and redness persisted at the site of test for approximately six weeks. No specific treatment has been given, since at this time he is symptom free.

The diagnostic criteria and clinical manifestations of the acute type of the disease cannot be described as simple, but generally the acute case is easier to recognize. Positive cultures are limited in a large majority to the acute infections. There has been a good deal of disagreement over the accuracy of the laboratory diagnosis of chronic brucellosis. The disease seems to far surpass syphilis in its ability to mimic other conditions. Unfortunately, however, we have no test comparable to the Wassermann in diagnostic reliability. Blood cultures are difficult and usually disappointing in chronic infections. The study by numerous investigators has established the fact cultures are usually negative in chronic cases, and all emphasize the difficulty encountered culturing the organism even in the acute disease.

There are three important reasons which account for this fact.

1. The culturing of the organisms requires a delicate and difficult technique and many times the growth is slow, yielding positive cultures only after three to four weeks. This greatly increases the possibility of technical error.

2. There is strong evidence of an intermittent bacteremia indicated by cases in which cultures repeated periodically were positive on some occasions while there were intervals when the cultures remained negative.

3. The majority of chronic cases that have yielded positive cultures have been those of brucella abortus, which lends good evidence that most chronic cases are due to this strain which is the most difficult to culture.

The difficulty in culturing the organism does not, however, excuse clinicians from attempting isolation of the organism. It does, however, emphasize the importance of repeated periodic cultures in probable cases, since the diagnosis has often been established by positive cultures when all other laboratory and skin tests were negative. As emphasized by all investigators, the proper technique must be closely adhered to in culturing the organism. Foshay[7] as well as others emphasize the importance of repeated cultures not only of blood but of urine, stools, bile, exudate, and lymph nodes. In suspected cases yielding negative cultures the diagnosis may be established by a combination of all tests combined with a careful history, exclusion of other diseases, blood picture, and the patients' response to specific therapy. The exclusion of other diseases is of paramount importance since brucellosis, a relative benign disease in its chronic form, simulates so many diseases whose prognosis is grave. Thus, one must consider very seriously and carefully the differential diagnosis which includes, among others, typhoid, enteric fevers, tuberculosis, tularemia, syphilis, malaria, rheumatic fever, subacute bacterial endocarditis, and Hodgkin's disease.

In the past a great deal of significance was attached to the agglutination test. Evidence by recent investigators, however, has shown agglutination titre as high as 1:80 is seldom found in chronic cases, and infections have been observed in which the test was positive with only one of eleven antigens used in testing. Robinson[8] found that in five patients with positive blood cultures none had a titre as high as 1:80. In twenty-two patients in Charlotte, North Carolina, in which a diagnosis of chronic brucellosis had been made the agglutinations were all negative, thus agreeing with the findings of Huddleson and his collaborators[9]. Dr. Foshay has shown that antibrucella serum may have broad agglutinating properties for organisims of other genera and families. In his work he has found that the serums made from carefully typed strains agglutinated most of the colon, typhoid, dysentery group, some salmonella, some aerogenes, almost all strains of proteus and alkaligenes, B. tularense and even H. influenza. He found that 6 to 10 per cent of cases proven by culture had negative agglutination.

Calder[10] after performance of more than 2,000 agglutination tests during and after vaccine therapy found the abortus strains are very poor agglutinogens in the human. The agglutination titre was

frequently negative after administration of abortus vaccines and almost never higher than 1:80. With addition of melitensis strains the titres often increased to 1:2560. These observations, as stated by Calder, may explain low or absent agglutinins in the chronic cases, since many of them are probably of bovine origin. Hagebusch and Frei[4] found that in children the agglutination test was the least valuable. This agrees with the findings of Harris and other investigators. In six patients followed seven years and two followed ten years, having high titres at onset of acute attack, the agglutinations have become negative although fever and active signs of the infection are still present. Evans[11], who suffered with the disease many years, cites severe cases proven by culture in which the agglutinations were negative, as was true in her own case. Many investigators have begun to attach more significance to titres as low as 1:10 in suspected cases. Thus, as demonstrated by many reliable investigators, a negative agglutination does not rule out the disease.

The intradermal test is a valuable aid in diagnosis when its limitations are understood. It is comparable to that of the tuberculin test in the diagnosis of tuberculosis. Huddleson[9] regards this test as highly diagnostic, a negative test indicating the disease is not likely. It has been definitely shown, however, that it is not uncommon for cases with positive blood cultures to have negative skin tests. Antigens for this test may consist of killed brucella or substances derived from the organisms. Undesirable reactions to the whole cell antigen have resulted in other preparations from the cell. Among these are brucellergin, prepared by Huddleson, and the fat-free antigens of Levin and Goldstein, Foshay has developed a method of detoxifying brucella with nitrous oxide, and Calder[10] and others have been using this material with results comparable to tests with other materials. All of the antigens are injected intracutaneously in the forearm and the reading is usually made forty-eight hours later. Some maintain twenty-four hour readings should be made also, and delayed reactions are also reported. A positive reaction is based on erythema with induration. The local reaction may persist for days. I have seen one that persisted six weeks. Evidence of the specificity of the skin test has been demonstrated by several reliable investigators. In 1929 Giordano[12] reported the result of this test in twenty cases of proven brucellosis and in one hundred uninfected cases used as controls. All of the proven cases had positive reactions while ninety-nine per cent of the controls had negative results. Calder observed that the mass symptomatology of 550 consecutive subjects showing a positive skin test was strikingly similar to that of patients in whom the diagnosis was made by positive culture. In 80 per cent of these patients specific therapy resulted in relief of symptoms. Hagebusch and Frei[4] found a similar response to specific treatment in children with positive skin tests and symptoms compatible with the disease. Their observations indicate the skin test may be more significant in a child than in an adult. Evidence clearly demonstrates there is no correlation between skin tests and agglutination tests, thus showing the serologic factors responsible for allergic skin reactions are different from those resulting in immunization reactions. Thus, in chronic illnesses with positive skin tests, symptoms and signs compatible with brucellosis, including fever of low grade in which exclusion of other diseases has been conscientiously done, evidence is sufficiently strong to warrant the trial of specific therapy. Since skin testing may produce agglutinins, it is very important to collect blood for agglutination test before this is carried out.

The phagocytic test described by Huddleson[9] is based on the observation that in the presence of specific brucella antibodies (opsonins) in the blood phagocytosis of brucella by neutrophils occurs, while in their absence this does not take place. The test is classified according to the phagocytized organisms as follows: No brucella, negative; 1 to 20, slight; 21 to 40, moderate; and more than 40, marked. The test was used to differentiate susceptible, infected, and immune cases. A positive reaction is supposed to be found in the immune state; a negative reaction in the presence of a positive skin test means active infection. Other investigators have not found this to hold true. Robinson and Evans[8] reported the death of a patient with a marked reaction and positive blood culture. In five active cases proven by positive blood cultures they report the phagocytic reactions varied from mild to weak. Findings of others also indicate that erroneous conclusions may be drawn if a

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strong opsonocytophagic reaction is interpreted as a sign of immunity. This test, like other laboratory tests, is valuable when incorporated with other findings.

The blood picture usually reveals a leukopenia with relative lymphocytosis, although chronic and mild cases may have a normal count. In a series of 35 cases, seen at Cook County Hospital, Levitt[13] reported 24 had a leukopenia. In 300 patients with evidence of the infection, reported by Calder[14], leukopenia was reported in one-third of the cases. The most striking feature in this series was lymphocytosis both in percentage and absolute number. A mild hyperchromic anemia was also a frequent finding. The blood picture observed by others agrees rather closely and indicates it is somewhat characteristic of the disease.

A very interesting experiment was made by Foshay and Calder in an attempt to answer the question about the alleged excessive finding of chonic brucellosis by the use of non-cultural methods of diagnosis. Sharing the same materials and methods, they each performed the skin, agglutination, and phagocytosis tests on one hundred patients. A positive reactor was defined as one who was positive to two or more tests. They considered that, if these tests are specific, a high percentage of positive reactors should be found in areas where the infection is known to be prevalent, and the opposite in the regions where it is seldom encountered. San Antonio, in a cattle country not far from a goat raising region, and where pasteurization was incomplete in the city and practically nil in the country, was chosen for one area. Here Calder found 91 per cent positive reactors on those with suggestive complaints.

Dr. Foshay tested patients selected at random in the wards in Cincinnati General Hospital, in a city with a very strict pasteurization law. He found only eight positive reactors. Seven of these gave a history of raw milk consumption and the other was a bacteriologist who suffered a laboratory infection. As pointed out by Hagebusch[4], this experiment also adequately answers the question of whether dead brucella in pasteurized milk might give rise to cutaneous hypersensitivity.

A typical history may reveal a period of long standing ill health. Chief complaints commonly encountered are weakness, ease of fatigue, lack of energy, aching in muscles, and sweating. When weakness and ease of fatigue are absent the diagnosis should be looked on with suspicion. Temperature taking is very important. Many may not be aware of a degree or more of fever in this disease. Fever may be absent or less than one degree. It is interesting to note that frequently the patient's friends think there is nothing wrong and many are dismissed with a diagnosis of neurasthenia.

Simpson[15] states that "A significant temperature curve, physical signs of disease, and positive agglutination tests and skin tests may be entirely lacking throughout a long period of chronic illness. Only a small proportion of patients with chronic brucellosis, probably less than 10 per cent, have experienced a previous acute febrile illness, compatible with a diagnosis of acute brucellosis. In many cases the patient is not entirely incapacitated for work, but complains chiefly of weakness and exhaustion, with or without mild fever. Since the commonly employed diagnostic tests are frequently negative in such cases, and since even the most conscientious physician may not find physical abnormalities to account for the patients complaints, the almost inevitable diagnosis of neurasthenia or psychoneurosis is too often made."

The disease has been demonstrated to be common in children. An excellent review of the literature by Hagebusch and Frei gives convincing evidence that this is true. It should be considered in all cases of unexplained fever and mild complaints of bizarre nature.

TREATMENT

The treatment of brucellosis will depend to a great deal on the various clinical manifestations it may present in different individuals. McGinty and Gambrell[16] list over a hundred and fifty different manifestations of chronic brucellosis. In general, the same symptomatic treatment as in other types of debilitating illnesses is indicated. The response of many patients to the sulfonamides and specific therapy has somewhat lessened the need of general supportive measures.

Numerous drugs have been recommended. In fact, nearly every drug in the therapeutic armamentarium has been tried. This in itself indicates none has been too successful. The reports of numerous investigators seem to indicate the sulfonamides are of greater value in the acute cases.

Artificial fever therapy has had favorable re-

ports. It should probably be reserved, however, for those cases refractory to specific therapy.

Specific therapy is now the choice of numerous investigators who have treated hundreds of patients and followed their results over a period of several years. The use of blood transfusions may be of help in some cases. In two patients receiving this treatment by Creswell and Wallace[17], prompt relief with no recurrences for two years resulted. The donors had high opsonic indices. Favorable results have been obtained with convalescent serum.

Flippin[18] reported five cases in which a polyvalent antiserum of bovine origin was used. All responded in from 2 to 3 weeks with apparent cures ranging from 8 to 24 months. Wherry, O'Neal and Foshay[19] also reported favorable results in a number of cases with antiserum. Hagebusch and Frei[4] reported favorable results in acute cases with antiserum supplied by Dr. Foshay. This serum was produced by inoculation of horses and goats with various strains of chemically treated suspensions of brucella of bovine, caprine, and porcine origin. The usual dosage of this serum is 60 cc., which may be given by three daily injections intravenously or intramuscularly. In children 20 to 30 cc. may be given in daily doses of 10 cc.

Vaccine therapy seems to be the method of choice among the majority of investigators. This is usually in the form of heat killed organisms. The stock vaccines usually contain 2000 million organisms per cubic centimeter. The goal in this form of therapy is to obtain from four to six sharp systemic reactions with fever ranging to 103 to 105. More recently some physicians have aimed at slight reactions with an increase in the number of injections. Some have used as many as twenty injections of a mixed vaccine. Brucellin, as prepared by Huddleson, is an alternate to vaccine therapy. This is a bacteria free agent of the three strains obtained by growing brucella cells in liver broth.

Hagebusch and Frei, in chronic cases in children, reported results on a series of 182 children diagnosed over a three year period. In their experience eighty per cent were helped regardless of age; twenty per cent helped during administration but relapses occurred. Resumption in this group brought relief again. Harris[6] obtained satisfactory results in ninety-five per cent of fifty-one cases treated with brucella vaccine alone. He reports the approximate accuracy of this figure in an additional 247 cases. Angle[20] reported excellent results in a series of 100 patients treated with brucella abortus vaccine. In 11 per cent it was necessary to give additional courses of vaccine due to relapses. One case remained unimproved after 12 months and two deaths occurred as a result of brucella bacterial endocarditis.

In vaccine therapy the usual procedure is, first, to skin test the patient. For this, 0.05 cc. of a 1:10 dilution is used. If no excessive local or systemic reactions occur in forty-eight hours 0.25 cc. may be given intramuscularly. If no ill effects are encountered the dose may be increased 0.25 cc. every three days until one cc. has been reached. Five to eight 1 cc. injections may then be given at three day intervals. If the sensitivity is marked, resulting in redness and severe swelling, the initial dose should be diluted 10, 100, or 1000 times. In some cases the injections may be given at 3 to 7 day intervals according to the degree of the preceding reaction. The interval should not be longer than seven days to avoid increasing the sensitivity. Experience of many investigators indicates there is no set rule of thumb in dosage. The physician must be guided by the reaction of the individual patient. In chronic cases with long continued fever larger doses of vaccine or brucellin may be required. The dose may be increased by 0.5 cc. until 2 to 3 cc. of the vaccine or 5 cc. of brucellin is reached. Huddleson and his co-workers believe a sharp reaction should be obtained as soon as possible before desensitization ruins the chances of successful treatment.

The results of many investigators indicate that with vaccine or brucellin therapy, approximately 60 per cent of the patients are apparently cured, 25 percent are improved, and 15 per cent unimproved.

Among the vast number of complications observed in brucellosis are spondylitis, endocarditis, orchitis, ocular manifestations consisting of retinitis, keratitis, uveitis, papilledema, and optic neuritis, meningitis and secondary encephalitis, psychosis, and abortions. Jones and Norris[21] reported scotomas to be frequent.

If universal use of only pasteurized dairy products could be attained a great source of infection would be eliminated. The use of raw milk from non-reacting cows is not safe since isolation of brucella abortus from cows with negative agglutination tests has been demonstrated. Kolmer, Bondi,

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and Rule[22] reported use of vaccine for active immunization against typhoid and brucellosis. It was well borne, with reactions comparable to typhoid-paratyphoid vaccine. Further studies may establish its value as a means of simultaneous immunization against typhoid and undulant fever.

CONCLUSIONS

1. From the work of many reliable investigators brucellosis has been shown to be far more prevalent than previously conceived.

2. It is not a self-limited disease running its course in a few days to a few months.

3. Specific therapy, in the form of heat-killed organisms from abortus strains, offers the greatest hope of cure or improvement in chronic cases.

4. The disease should be considered in all cases of fever undetermined origin and clinical pictures of a bizarre nature.

5. In making the diagnosis, a combination of all the laboratory tests combined with clinical findings should be utilized.

6. The methods of prevention should be stressed, especially in those areas where the disease is commonly recognized.

7. Cases of habitual abortion, in which other causes have been ruled out, should be investigated for brucellosis.

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26 West Williamsburg Road

FORUM

MEDICAL SOCIETY OF VIRGINIA

REHABILITATION

An Effective Partnership.

Unpublicized, and thus virtually unknown, is the work of one of the Medical Society of Virginia's newest committees—the Committee on Rehabilitation. This is the story of the contribution which this committee is making in the development of the program of vocational rehabilitation in Virginia as carried on by the Vocational Rehabilitation Service of the State Department of Education.

Throughout this broad land of ours there are thousands of individuals whose ability to find a suitable place in the employment world is seriously impaired if not completely blocked by the presence of a disability, a disability resulting from the ravages of disease, from the toll of accidents on the highway, factory or farm, and from the effects of congenital conditions. Unfortunately, the number is added to daily. Dependence, unemployment, frustration, and unhappiness are the concomitant results of such disability, results which affect relatives, dependents and the very community itself.

The challenge to return every possible disabled person to a status of self-support, self respect and independence is a powerful one. It is part and parcel of that inner core of democracy and Americanism which holds that every individual is important and that the right to happy and useful living is his sacred right.

On December 7, the Committee on Rehabilitation, which is also the Medical Advisory Committee of the Department of Education's Rehabilitation Service, met with officials of the Rehabilitation Service for its first meeting of the new year. The purpose of the meeting was two-fold: (a) to review recent developments, including the establishment of the Woodrow Wilson Rehabilitation Center, in the rehabilitation program and (b) to explore the possibilities of having the Committee promote a fuller understanding of rehabilitation among the Society's members.

The meeting was held at the Woodrow Wilson Rehabilitation Center located at the former Woodrow Wilson General Hospital of the U. S. Army, midway between Staunton and Waynesboro. The committee has told of the full utilization of this expensive surplus wartime facility by Augusta County and the State to house a consolidated county high school of near a thousand students, a vocational school to serve the whole Valley region, and a Rehabilitation Center.

More about the Rehabilitation Center. As stated by Mr. W. K. Barnett, Supervisor of the Center, "Services are being developed at the Center designed to enable the Rehabilitation Service to bring about the adjustment of hundreds of severely disabled civilians in the State into suitable trades and vocations who hitherto could not be adequately served. These services include (a) a guidance laboratory where new and effective procedures can be employed to help handicapped persons discover their abilities and choose the right job; (b) physical reconditioning and retraining in a thoroughly modern physical medicine department; (c) vocational training under conditions especially favorable to disabled persons; and (d) actual work experience in production shops at the Center in sedentary and light manual jobs".

The Rehabilitation Center comprises fifty-seven buildings of semi-permanent construction which are rapidly being converted into classrooms, student living quarters, shops, facilities for physical and occupational therapy, mess halls, a guidance center, recreation center, and administrative offices. This is expected to house upwards of five hundred handicapped students, both youngsters and adults when it is fully occupied, all of them preparing themselves to return home to a self-supporting job or trade. The Committee learned that twenty students had already enrolled since the opening date, November 3. Smiling young persons on crutches and in wheel chairs were very much in evidence. For them a new life has begun.

Dr. Roy M. Hoover, chairman of the Committee, pointed out that the services of Vocational Rehabilitation through its field counselors and through the Rehabilitation Center offer a valuable resource to doctors whose patients must face readjustment on a job with a serious physical limitation. Any per-

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son of working age with a physical or mental handicap to employment or to full employment can receive educational, advisory, and placement services without cost to himself. Applicants for physical restoration services must demonstrate inability to purchase these services themselves.

Dr. Hoover pointed with pride to the report of physical restoration activities of the rehabilitation agency during the previous fiscal year. Three hundred eighty six indigent persons were supplied with the necessary medical and surgical treatment at a cost of $54,000. One hundred eighty seven disabled persons were assisted in securing braces, artificial limbs, hearing aids and other prostheses. Each service was a part of an individual plan of rehabilitation which would enable the disabled person to enter a new job or return to his old one. The earnings of this group during the first year after rehabilitation will repay many times the cost of the service from public funds.

Medical services including diagnostic examinations, surgery, and physiotherapy are provided by qualified physicians in the State, who are reimbursed from rehabilitation agency funds on the basis of a schedule of professional fees that was developed cooperatively by the agency and its Medical Advisory Committee. Hospitalization is purchased from approved hospitals in the State with whom the agency has cooperative agreements. In each individual case careful investigation is made by the rehabilitation agency of the applicant's ability to pay for the needed services.

The doctor and the rehabilitation counselor work as a team. The counselor is responsible for assembling all the information concerning the client which bears on his eligibility and feasibility; his ability to profit by training; his medical needs; his skills and aptitudes. The counselor must depend on the physician for thorough medical diagnosis, for a determination of physical limitation, and for recommendations as to further treatment to remove or reduce the disabling condition.

Present at the meeting was Dr. Thomas B. McKneeley, Chief, Physical Restoration Section, Office of Vocational Rehabilitation, who spoke briefly. Dr. McKneeley stated that case services to clients are 50% reimbursable by the Federal Government to State administered programs of vocational rehabilitation. Dr. McKneeley complimented the Virginia program very highly in being the first to establish a Rehabilitation Center within the agency itself and expressed the belief that the center would soon be meeting a vital need in providing the necessary rehabilitation services to severely handicapped persons. Dr. McKneeley explained that medical services are a highly important part of a well-rounded program of vocational rehabilitation, since after proper diagnosis, many disabilities can be eliminated or greatly reduced through proper treatment. Dr. McKneeley stated the conditions of eligibility for treatment to be: (1) the disability must be a considerable vocational handicap; (2) the individual must be medically indigent; (3) the condition must be "static"; (4) the condition must be amenable to successful treatment and; (5) the treatment must be completed within a reasonable length of time.

The committee was pleased to have at its meeting Dr. Guy R. Fisher, President, Medical Society of Virginia. Dr. Fisher expressed his pleasure at the constructive manner in which the Society's Committee on Rehabilitation was cooperating with a State educational agency in carrying out a program of rehabilitation for the physically handicapped that would more fully meet their needs. He stated that he felt a personal challenge as a physician to call to the attention of the rehabilitation agency disabled persons whose enforced idleness had often become an accepted part of the life of a community and that the practice of medicine could have no higher goal than to see the disabled patient regain his maximum usefulness in the community.

Dr. Fisher emphasized the Society's desire to promote and extend medical care to indigent persons on a basis that protects the fundamental rights of both the patient and the physician. He stated that the medical phases of the rehabilitation program in Virginia are being conducted in a manner that would command the respect and enthusiastic support of the Society's members. Dr. Fisher urged the Committee to accept as one of its tasks a responsibility for disseminating information about the program regularly to the doctors of the State and to keep the doctors informed as to the medical needs in the program.

To carry out its plans for a more active program of cooperation with State rehabilitation officials the Committee plans three regular meetings during the year. The five-member executive sub-committee will prepare more specific plans for presenting rehabili-

tation information to doctors. The Committee and representatives of the rehabilitation agency will seek to meet the requests of local medical groups for program material on vocational rehabilitation as well as the requests of any individual physician.

Most clients come to the Vocational Rehabilitation Service after years of struggling against a handicap. There is too long a time-lag between the sickness or injury and the beginning of guidance, curative or remedial services, training and placement. The concerted efforts of the doctor and the rehabilitation worker must be begun at the earliest possible moment. Physical rehabilitation alone is not enough. Attempts at vocational adjustment without adequate diagnosis and treatment are futile. Together they reach their highest fruition.

The membership of the Committee on Rehabilitation is as follows:

Dr. Roy M. Hoover, Roanoke.
Dr. W. E. Dickerson, Danville.
Dr. Paul D. Camp, Richmond.
Dr. George A. Duncan, Norfolk.
Dr. J. R. Blalock, Marion.
Dr. N. F. Rodman, Norfolk.
Dr. L. J. Roper, Richmond.
Dr. G. B. Setzler, Pennington Gap.
Dr. Leroy Smith, Richmond.
Dr. Frank B. Stafford, Charlottesville.
Dr. G. S. Fitz-Hugh, Charlottesville.
Dr. F. J. Wright, Jr., Petersburg.

American Academy of General Practice.

Members in forty-two states, the District of Columbia and Hawaii have been enrolled in the newly formed American Academy of General Practice, according to a statement issued today by Dr. Paul A. Davis, Akron, Ohio, president of the Academy. Applications are being received at the rate of nearly 100 a week at the headquarters of the national association of general practitioners of medicine and surgery, temporarily located at 20 North Wacker Drive, Chicago 6, Illinois. Mac F. Cahal, executive secretary of the American College of Radiology, is serving as general counsel and acting executive secretary of the Academy of General Practice.

Dr. Davis, president, was last year chairman of the Section on General Practice of the American Medical Association. Other officers of the Academy are: Dr. E. C. Texter, Detroit, vice-president; Dr. U. R. Bryner, Salt Lake City, treasurer; Dr. Stanley R. Truman, Oakland, California, secretary.

The Academy has no official connection with the American Medical Association except that members must be members of the American Medical Association. The Academy plans to support and cooperate with the A. M. A. in its high ideals and will also support every other group whose aims are unselfish and for the best interests of the public health.

The purposes of the Academy, as set forth in its constitution are:

1. To promote and maintain high standards of the general practice of medicine and surgery.

2. To encourage and assist young men and women in preparing, qualifying, and establishing themselves in general practice.

3. To preserve the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience.

4. To assist in providing postgraduate study courses for general practitioners, and to encourage and assist practicing physicians in participating in such training.

5. To advance medical science and private and public health.

To be eligible for membership a physician must be engaged in general practice. He must be duly licensed in the state in which he practices, and must be of high moral and professional character. He must have had at least one year of rotating internship at an approved hospital, or the equivalent in postgraduate training. He must have been in general practice for at least three years. (Special consideration is being given by the Membership Committee to military service). He must have shown interest in continuing his medical advancement by engaging in postgraduate educational activities.

Since its inception the progress in organization has been remarkable. After only three months the membership is larger than all but the two or three largest specialty groups. By stimulating postgraduate study and establishing a standard of quality toward which all conscientious general practitioners will strive, the Academy will promote progress in general practice in much the same way the specialty societies have promoted progress among specialists.

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ANA Assails Plan to Use Practical Nurses in Place of Professional Registered Nurses.

Indiscriminate substitution of practical nurses for registered professional nurses to take over the major part of ordinary bedside nursing, as suggested by Dr. Morris Fishbein of the American Medical Association, has been assailed by Ella Best of the American Nurses' Association as "detrimental and dangerous" to a patient's health.

Her opposition to Dr. Fishbein's views, which appear as an editorial in the current issue of the health magazine *Hygeia* was made known in a telegram sent to Dr. Fishbein.

"May we respectfully suggest that the solution of the nursing crisis does not lie in the training of more practical nurses to take over the major part of bedside nursing in hospitals, as you were quoted by the Associated Press with a Chicago dateline as saying in *Hygeia*. We recognize that practical nurses fulfill a needed function but not this one. This step would be extremely detrimental and dangerous to a patient's welfare", Miss Best wired.

"In time of critical shortage of doctors it was not suggested that first aid technicians be substituted in their place. The same parallel exists between practical and professional nurses.

"The ANA program for practical nurses calls for increased utilization of their services if three precautions are taken: 1—Proper preparation and training of at least nine months in an accredited school. 2—State licensure for practical nurses to maintain standards of practical nursing and to weed out the incompetents. 3—Proper placement and supervision to make certain practical nurses are placed where they will not practice beyond their ability, and to insure their working under competent supervision.

"The American Nurses' Association holds that the crisis in nursing will be overcome only when the profession is made sufficiently desirable to attract and retain a sufficient number of qualified women on a basis of its professional status and economic stability. This rather than lowering the standards of nursing seems to be indicated in the public interest", Miss Best concluded.

Dr. Fishbein's editorial, pointing out the existence of a national nurse shortage of 42,000, suggested that the answer to the problem may lie in the training of more practical nurses to take over the major part of ordinary bedside care in hospitals.

Medical and Surgical Symposium.

Watts Hospital, Durham, N. C., will hold its fifth annual Medical and Surgical Symposium on February 11 and 12, for which the following interesting program has been arranged:

WEDNESDAY, FEBRUARY 11, 1948

11:00 A.M.—1:00 P.M.

Clinico-Pathological Conference—Virgil H. Moon, M.D., Professor of Pathology, Jefferson Medical College, Philadephia; and Garfield G. Duncan, M.D., Director of the Division of Medicine, Pennsylvania Hospital, and Clinical Professor of Medicine, Jefferson Medical College, Philadelphia.

2:30 P.M.—"The Clinical Use of Endocrines in the Management of Urogenital Tract Disease"—Reed M. Nesbit, M.D., Professor of Urology, University Hospital, Ann Arbor.

3:30 P.M.—"Recent Advances Concerning Coronary Heart Disease"—Louis N. Katz, M.D., Director of Cardiovascular Research, Michael Reese Hospital, Chicago.

8:00 P.M.—"The Diagnosis of Pituitary Disease"—Lewis M. Hurxthal, M.D., Surgeon-in-Chief, Medical Department, Lahey Clinic, Boston.

9:00 P.M.—"Pathogenesis and Treatment of Malignancy of the Large Bowel"—Richard B. Cattell, M.D., Surgeon-in-Chief, New England Deaconess Hospital; Surgeon, New England Baptist Hospital; Surgeon, Lahey Clinic, Boston.

THURSDAY, FEBRUARY 12, 1948

11:00 A.M.—1:00 P.M.

Clinico-Pathological Conference—Tracy B. Mallory, M.D., Director of the Laboratories of Pathology and Bacteriology, Massachusetts General Hospital, Boston; and Conger Williams, M.D., Associate of Dr. Paul White in the Cardiologic Group, Massachusetts General Hospital, Boston.

2:30 P.M.—"Anticoagulant Therapy"—Nelson W. Barker, M.D., Associate Professor of Medicine, Mayo Foundation, Rochester, Minn.

3:30 P.M.—"Late Changes in Joints as a Result of Internal Derangements of the Knee"—Ralph K. Ghormley, M.D., Professor of Orthopedic Surgery, Mayo Foundation, Rochester, Minn.

8:00 P.M.—"Treatment of Diabetes in Every Doctor's Practice"—Elliot P. Joslin, M.D., Professor Emeritus, Clinical Medicine, Harvard Medical School, Boston.

9:00 P.M.—"Recent Nutritional Advances in Medicine and Surgery"—Paul R. Cannon, M.D., Professor of Pathology, University of Chicago, Chicago.

Further information on the Symposium may be obtained from Dr. W. W. Vaughan, who has charge of the Symposium.

XUM

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for November 1947, as compared with the same month in 1946, and for the period of January through November, 1947, compared with the same period in 1946, is as follows:

	Nov. 1947	Nov. 1946	Jan.-Nov. 1947	Jan.-Nov. 1946
Typhoid and Paratyphoid	29	13	156	116
Diarrhea and Dysentery	141	109	4,808	2,560
Measles	100	270	7,661	13,215
Scarlet Fever	182	166	1,184	2,528
Diphtheria	39	82	227	498
Poliomyelitis	18	29	172	132
Meningitis	4	4	96	194
Undulant	9	8	74	60
Rocky Mountain Spotted Fever	1	1	67	93
Tularemia	3	5	50	57

TULAREMIA IN VIRGINIA

During the past ten year period 647 cases of tularemia have been reported to the State Department of Health, and of these, 389 or 59.2% occurred in the months of January and February and again in November and December. This four month period roughly coincides with the hunting season and its attendant risks in handling rabbits and squirrels and other infected animals. It is therefore considered opportune to review certain factors in diagnosis, treatment and prevention of this disease.

Tularemia infection largely occurs in those who have handled infected rabbits, although the disease may develop through contact with a wide variety of other animals and certain birds. Infection may also be acquired through tick bite or that of other blood sucking insects. The infecting organism may enter the body at any point wherever microscopic abrasion of skin or membranous tissue occurs and, in most cases, the characteristic lesion later develops at this point with enlargement of the regional lymph nodes. In other types, without apparent local lesion, local or general adenitis may occur and tularemic pneumonia or gastro-intestinal infection may develop. Material assistance to diagnosis is offered by the rabbit handling history and by the specific agglutination test, which becomes of significant titer early in the disease.

Aside from symptomatic and supportive therapy, streptomycin may be regarded as a specific antibiotic and brilliant results have followed its usage, particularly in early cases. The recommended dosage will vary according to severity and type of infection. Dosage is indicated of from 0.5 to 2.0 grams daily, given intramuscularly or subcutaneously at three or four hour intervals. This therapy should be continued for five to seven days or longer if temperature or infection persists.

Preventive measures obviously are directed toward avoidance of handling infected rabbits. Since all wild rabbits are potentially infected, the hands should be protected by heavy gloves in cleaning and dressing the animals. Those with open body lesions should exercise particular precautions and, if possible contamination has occurred, prompt local antiseptic applications are indicated. The rabbit meat should also be carefully handled and well cooked to avoid serious internal infections.

Rare Graft Operation.

A rare case in which part of a man's ear-flap was successfully transplanted from one ear to another is reported in the current issue of *Archives of Otolaryngology*, a publication of the American Medical Association, by Alfred Wachsberger, M. D., Sacramento, Calif.

The patient had received an accidental injury to his left ear 12 years before which resulted in a defect of the ear-flap. Both ears being proportionately large, a graft was taken from the normal ear to repair the defect, since the left ear would also have to be reduced in size in the course of the operation

Bibliotheca Obstetrica

CLEOPATRA, 69 B.C.—30 B.C.: De Morbis Muliebribus, Liber, ex Prisciano Cleopatra, Moschione, libro Matricis dicto, & Theodoro Prisciano collectus. In Caspar Wolf's Gynaeciorum, Basel, 1566 and in Israel Spach' Gynaeciorum, 1597.

The name Cleopatra is intriguing. It is common enough in profane history, but is practically nonexistent in medical biography. The only reference to Cleopatra, the gynecologist, is: C. F. Mayer, Orv. hetil. 73:22, 1929. The Army Medical Library was good enough to send us a microfilm of the article. It is in Hungarian and we were unable to find anyone who could translate it for us. Finally Dr. Mayer, hearing of our difficulty, sent us a translation of his own article. It is from his translation that the following was abstracted: Cleopatra was the author of four works relating to medicine, De Morbis Mulieurum, De Chymia sive arte aurum faciendi, De Mensuris et ponderibus, and De Unguentis pretiosis. Of these only the first is extant. It exists in ms. and in printed form. It was written at the request of her daughter and is probably gotten from Cleopatra's physicians, Dioskorides and Olympus. The former was the author of 24 medical works.

In the third century B.C. Herophilos founded a school of gynecology in Alexandria. Herophilus wrote a work for midwives, and an Alexandrian physician called Kleophanthes also wrote on gynecology. These two works were probably the basis for all gynecological writings of the Middle Ages as well as for Cleopatra's work. The Alexandrine school, when Cleopatra attended it, contained both the tradition of the ancient Egyptians, which was magic medicine, and the rational medical science of the Greeks. Soligines, the astronomer, who devised the calendar for Julius Caesar, was one of Cleopatra's teachers. Wolf mixed up the work of Cleopatra with the writings of other gynecologists. It is however possible to separate the parts written by Cleopatra and thus obtain the gynecology of the Alexandrine school around the time of Christ. It is characterized by the lack of teleology. There are but few anatomical facts. Physiology is also scanty except that the work describes the changes of the face in choleric women during sexual intercourse. The most frequent causes of diseases are mentioned to be the method and frequency of sexual intercourse as well as the menstruation and its disorders. Sterility is either in the man or the woman. In man it is caused by debauchery or drunkenness. In women the body constitution has great influence upon their fertility. The asthenic and obese and those of a nagging nature are usually infertile. She knows how to recognize pregnancy from hydatid mole by palpation of the cervix. She mentions eclampsia in labor and the presence of septic ulcer in the vagina in puerperal fever. She describes an uterine worm which permeates the uterus from the intestines, causing an itching both in the body and the external genitalia. The inflammation of the uterus is treated by blood letting and cupping, massage, and application of mustard plaster to the abdomen. Against displacement of the uterus she recommends aromatic fumigations by which the uterus may go back to its place.

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President.....MRS. J. L. DECORMIS, Accomac
President-Elect.....MRS. R. M. REYNOLDS, Norfolk
Recording Secretary.....MRS. M. H. HARRIS, West Point
Corresponding Secretary MRS. HOLLAND TROWER, Eastville
Treasurer.....MRS. REUBEN SIMMS, Richmond
Parliamentarian.....MRS. E. LATANE FLANAGAN, Richmond
Historian.....MRS. H. A. LATANE, Alexandria

Reports from Auxiliaries.

AUXILIARY TO THE DANVILLE-PITTSYLVANIA ACADEMY OF MEDICINE

This Auxiliary met October 29, at which time Mrs. Henry Bourne, Chairman of the day, gave a few highlights on the meeting in Roanoke. Following this, she introduced the speaker, Dr. L. R. Broome, who gave a most helpful and interesting talk on "Tuberculosis as a Civic Problem".

HELEN S. MCMANN, (MRS. WALTER)
President.

AUXILIARY TO THE WARWICK COUNTY MEDICAL SOCIETY

This Auxiliary held a bazaar at the St. Andrew's Episcopal Church on December 4th and 5th. Mrs. Barnes Gillespie was general chairman, and the proceeds were contributed to the Lucille Hunnicutt Jones Award. This award was created by the Woman's Auxiliary to the Warwick County Medical Society to perpetuate the memory of Mrs. Jones, wife of Dr. Orvin C. Jones and sister of Dr. Thomas N. Hunnicutt, Jr., both of Newport News, as she was a very active member of the Auxiliary, interested in medical and nursing work. The award is presented to the outstanding student nurse at Riverside and Buxton Hospitals, upon completion of her preclinical.

For the year 1947 the following students were recipients of a $50.00 cash award: Lottie Mae Batemen of Elizabeth Buxton Hospital, Helen Bluford of Riverside Hospital, and Dorothy Moore of Elizabeth Buxton Hospital.

The new officers of the Auxiliary were installed in October 1947 at the Chamberlain Hotel, Old Point Comfort, and are as follows:

President, Mrs. Chester D. Bradley.
Vice-President, Mrs. Thomas N. Hunnicutt, Jr.
Treasurer, Mrs. J. C. Cutler.
Recording Secretary, Mrs. Melvin L. Horne.
Corresponding Secretary, Mrs. Herbert H. Neisser.
All are of Newport News.

GLORIA C. GOLDSMITH,
(MRS. WILLIAM M.)
Chairman, Publicity.

BOOK ANNOUNCEMENTS

400 Years of a Doctor's Life. Collected and arranged by GEORGE ROSEN, M.D., and BEATE CASPARI-ROSEN, M.D. Henry Schuman, New York, Publishers. 1947. xvii-429 pages. Cloth. Price $5.00.

American Medical Research Past and Present. RICHARD H. SHRYOCK, Ph.D., Professor of History and Lecturer in Medical History, University of Pennsylvania; Acting Director, American Council of Learned Societies. New York, The Commonwealth Fund, 1947. xv-350 pages. Cloth. Price $2.50.

Ulcer. The Primary Cause of Gastric and Duodenal Ulcer; Diagnosis, Medical and Surgical Treatment, Prevention. By DONALD COOK, B.A., M.D., Chicago. Medical Center Foundation and Fund, Chicago. 1947. xiii-187 pages. With 27 illustrations. Cloth.

Textbook of Human Physiology. By WILLIAM F. HAMILTON, Ph.D., Professor of Physiology, University of Georgia School of Medicine. Philadelphia, F. A. Davis Company, 1947. xvi-504 pages. With 121 illustrations. Cloth. Price $6.00.

Textbook of the Ear, Nose and Throat. By FRANCIS L. LEDERER, B.Sc., M.D., F.A.C.S., Professor and Head of Department of Otolaryngology, University of Illinois College of Medicine, Chicago; Chief of the Otolaryngological Service, Research and Educational Hospital, etc. And ABRAHAM R. HOLLENDER, M.Sc., M.D., F.A.C.S., Professor of Otolaryngology, Emeritus, University of Illinois College of Medicine, Chicago, etc. Second edition. F. A. Davis Company, Philadelphia, 1947. xi-596 pages. 182 illustrations. Cloth. Price $7.00.

Sex Power in Marriage. With Case Histories. EDWIN W. HIRSCH, B.S., M.D. Research Publications of Chicago, 1947. xxi-218 pages. Cloth. Price $3.00.

Practical Clinical Psychiatry. By EDWARD A. STRECKER, A.B., A.M., ScD., Litt.D, LLD., M.D., Professor of Psychiatry, School of Medicine, University of Pennsylvania; FRANKLIN G. EBAUGH, A.B., M.D., Professor of Psychiatry, University of Colorado, School of Medicine; JACK R. EWALT, M.D., Professor of Neuro-Psychiatry; Director, Galveston State Psychopathic Hospital, University of Texas Medical Branch. Section on Psychopathologic Problems of Childhood by LEO KANNER, M.D., Associate Professor of Psychiatry, Johns Hopkins University, School of Medicine. Sixth edition. The Blakiston Company, Philadelphia. 1947. xi-476 pages. Cloth. Price $5.00.

The Practical Nurse. By DOROTHY DEMING, R.N., Consultant in Public Health Nursing, Merit System Unit, American Public Health Association, etc. New York, The Commonwealth Fund, 1947. viii-370 pages. Cloth. Price $3.00.

Much confusion exists in the minds of patients and the public as to the meaning of the terms, prac-

tical nurse, registered nurse and professional nurse. There is need to define the functions of additional workers who are engaged in the care of the sick. The author of "The Practical Nurse" has very ably discussed many questions in this comprehensive book in which she describes how the practical nurse has functioned in the past and the many ways in which she is now serving in homes, general, mental and tuberculosis hospitals, industry, and in the newest field, public health.

In Chapter II, entitled "Who is the Practical Nurse?", not only is the modern practical nurse as a person defined in detail but also an historical review of the rough road over which she, like her professional sister, has travelled lend clarity to her true and needed usefulness as a member of the health team. The early trained nurses were practical nurses from our modern viewpoint while doctors performed many of the procedures now the responsibility of the professional nurse. The author writes, "The discoveries of the laboratory have demanded a more highly educated professional nurse to assist the doctor in diagnosis and treatment and have driven out Miss Nellie, kindly, conscientious and deft though she was, to be replaced by the practical nurse trained to assist the professional nurse in giving bedside care and the simpler treatments."

No one will deny the pressing need for information concerning the place of the practical nurse who is here to stay. Valuable reference material including facts and figures will be found in chapters under such topics as, "Where Should Practical Nurses Prepare?", "Variation in Curricula in the Schools of Practical Nurses", "Where Should Practice be Given?", Problems in Teaching", "The Need for Supervision", "Essential Points in a Good Nurse Practice Act", and "Employment Problems." The appendix contains an annotated list of textbooks and instruction outlines together with the names of the 46 schools for training practical nurses or licensed attendants approved as of July 1945.

SYBIL MACLEAN.

Hospital Care in the United States. A Study of the Function of the General Hospital, Its Role in the Care of All Types of Illness, and the Conduct of Activities, Related to Patient Service, with Recommendations for Its Extension and Integration for More Adequate Care of the American Public. Commission on Hospital Care. New York, The Commonwealth Fund, 1947. xxiv-631 pages. Cloth. Price $4.50.

The purpose of this survey as stated in the report was to make "A Study of the Function of the General Hospital, Its Role in the Care of All Types of Illness, and the Conduct of Activities Related to Patient Service, with Recommendations for Its Extension and Integration for More Adequate Care of the American People." The Commission on Hospital Care was organized in 1942 upon the recommendation of the Postwar Planning Committee of the American Hospital Association. The Commission recognized that hospital care must be organized and effected by the residents of the area who use the facilities. The basic plan of the pilot study made in Michigan is carefully outlined including the procedures and methods of study developed by the Commission which may serve as a work pattern for other states. The wide variety of groups represented on the Commission, including individuals from professional organizations (medical, dental, nursing, hospital), hospital administration, the press, industry, labor, agriculture, clergy and education, provides a broadened basis upon which a report may be presented to the American people as a guide to the future development of hospital care.

Section one of the report considers the organization, objectives, purpose and method of study of the Commission on Hospital Care. The far-reaching scope of the survey is reflected in the summary of 181 recommendations briefly stated in section two and amplified in detail throughout the book. Goals for administrators of nursing services and nursing education are found among the conclusions. Factors governing the distribution, use, size, and need for hospital facilities are analyzed and attention is given to all major hospital problems including distribution of professional personnel, population density and size of hospital community, and method of measuring bed need. Statistical data are presented in 94 tables and 58 charts which show rural-urban variations and similarities, personnel distribution, present health facilities, and vital statistics.

This book is of particular value to nurses who participate in planning hospital and health resources in their communities. Advisory and citizen committees and teachers should be encouraged to use the book as a source of valuable information concerning today's hospital situation and probable future plans for health care.

SYBIL MACLEAN.

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EDITORIAL

Westminster Abbey and Its Monuments

THE aisles and walls of Westminster Abbey, St. Paul's and, to a lesser extent, the other great Churches in England, are cluttered up with statues and memorials. It would seem that no dead Englishman is ever forgotten. To us, living—to some of us living right—but at any rate living, is the important thing. In England, the emphasis seems to be placed on dying. Some, who have done nothing in life to achieve renown, gain immortality in the way they have died. Others who have had some small achievement in life, become famous in death. The size of the memorial bears some relationship to the deceased's means, but the interest of posterity, be it said to its credit, does not seem to be greatly influenced by the size of the statue. The politicians in the North transept of the Abbey attract fewer visitors than the poets on the opposite side of the Church.

Our guide in London told us some wonderful stories in this connection. There was Jack Sheppard, Knight Templar, turned highwayman. When he was finally hung, his brother Knights took pity on his body and encased it in lead and, since it could not be buried in Holy Ground, hung it up a tree. After some 60 years, when his infamy was less malodorous, it was cut down and buried in front of their church, St. Mary the Virgin. Then there was Thomas A. Becket, another Englishman, who gained immortality in death. Our guide's story checks well with history, with perhaps some difference in emphasis. According to our guide the common people had a hard time in Henry II's reign. There were ecclesiastical courts and royal courts. If you fell into the clutches of either, and you did not have money to buy yourself out, you were out of luck. Of the two, the ecclesiastical courts were the more corrupt. Upon the death of the Archbishop of Canterbury, Henry attempted to "pack" the ecclesiastical supreme court, by appointing Thomas Becket, one of his supporters, to the vacant see but, as soon as Thomas got firmly seated, he became as bad as his predecessor. In a fit of vexation, Henry exclaimed "Will not some one rid me of this rascal?" Accordingly, three knights in full armor called upon the Archbishop, who, becoming alarmed, fled into the Cathedral. The knights pursued him and overtook him as he neared the high altar, and brutally slew him. Becket was canonized almost immediately and his tomb back of the altar attracted innumerable pilgrims. Plenary indulgencies were given for a visit to the shrine. When Henry VIII came to the throne, it was the richest shrine in England. This was more than Henry could stand, especially as it was the very personification of resistance to royal authority. The King ordered the tomb to be destroyed and carted away 29 wagon loads of loot. The site of the tomb is now a bare space outlined by original stone worn hollow by pilgrims' knees.

As examples of those whose reputations were enhanced by their manner of death or burial, at least in the eyes of tourists, are Sir Thomas More and Ben Jonson. Our guide said not a word about *Utopia,* but related how when Sir Thomas was beheaded, and his head stuck upon London Bridge, his daughter bribed a guard to toss it into the river. She "happened" to be passing in a boat and recovered the head and buried it in St. Dunstan's in Canterbury. In Westminster Abbey he told us about Ben Jonson, who being poor, could not buy a grave within the Abbey. However, he requested that he be given six inches of consecrated ground. Accordingly he was buried standing up in the North Aisle of the Nave. The spot is marked with a small stone which

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attracts almost as much attention as the grave of the unknown soldier, who is buried near the west door in French mud and covered with Belgium granite.

One Sunday afternoon we went to divine service in the Abbey. The congregation, about 500, filled the seats in the choir and about one-fourth of the North aisle. It takes some special occasion like a coronation to fill the entire church. The music was magnificent and the sermon was excellent. We were not conscious of the memorials about us, neither Shakespeare, nor Jonson nor even Lord Byron bothered us. Yet somehow we had a feeling that the service was a secondary matter. On this side of the Atlantic we have churches especially for divine worship; we bury our dead in cemeteries, and hold our civic pageants in auditoriums. Possibly we have carried specialization too far, and maybe the English are right. In the long run they usually are.

The Conference of State Medical Association Secretaries and Editors

LAST year a committee was appointed with Mr. Theodore Wiprud, secretary of the Medical Society of the District of Columbia, as chairman, to prepare a program for this meeting. The result was a most excellent program that took up every minute of Friday and half a day Saturday, November 7th and 8th. In the morning of the first day were discussed: Health exhibits for lay groups, effective scientific programs for medical meetings, a survey of group practice, and the private physician in the school health program. After lunch there was a panel discussion on the progress of prepayment medical care plans. The meeting then divided into five groups for round table discussions on (1) public relations, (2) relations with labor, (3) federal and state legislation, (4) rural medicine, and (5) planning and conducting state medical conventions. At the dinner for the secretaries there was a forum on "How Can the Activities of the American Medical Association and the State Medical Societies be Better Coordinated?" At the dinner for the editors there was a state medical journal clinic. On Saturday morning there were reports of the round table discussions of Friday afternoon. In addition Louis Bauer told us about the World Medical Association. Before adjourning the Conference elected a Program Committee for the 1948 conference.

Space forbids our discussing all the interesting topics. We shall confine ourselves to a report on prepayment medical care programs and the clinic on medical journals. The first prepayment medical plan was started in 1882 by the Northern Pacific Railroad. Plans sponsored by the medical profession are now operating in 38 states. There is a close parallel between the growth of the prepayment medical plans and the Blue Cross Hospital Plans. The Blue Cross now has an enrollment of 29,000,000. The medical care plans have now 7,000,000 enrolled. Their worry now is not that the plans will not grow, but that the plans will grow so fast that they will not be able to carry out the contracts on account of lack of hospital beds. Surveys have shown that there is a shortage of 195,000 general hospital beds in the country. In Wisconsin, where the farmers, labor unions and government employees comprise one-fourth of the population, the cooperatives have gotten through the legislature an enabling act, so that they can have their own prepayment medical care plan. The state medical society helped them shape the legislation. Another phase of prepayment medical care is the private insurance plan. The number who are insured in private companies was not stated, but the statement was made that the rates charged by the private companies have been considerably reduced. Another phase that was discussed was the publicity

or lack of publicity. In Michigan where the medical plans have about one million subscribers, Senator Vandenburg, who is greatly interested in all such matters, did not know about this coverage. In a recent conference the Senator from Michigan said that while the figures show that one out of four persons in Michigan was a subscriber, yet only five out of 100 persons, whom a politician met on the street, knew anything about the plan.

The "patients" in the medical journal clinic were *California Medicine, The Connecticut State Medical Journal, The Ohio State Medical Journal,* and the *Wisconsin Medical Journal.* Mr. Robert H. Roy, Chief Engineer, Waverly Press, discussed format and topography. He was very complimentary of the Connecticut Journal praising both the appearance and the legibility. He said that a slightly smaller type such as the California journal used, would be more economical in that more matter could be printed on a page and that it would be easy enough on the eyes. When asked about advertisements on the front cover, he said that he was strongly against such practice. Someone mentioned the Journal of the American Medical Association and Dr. Fishbein replied that he did not like it any better than Mr. Roy, but that its use since the eighties had given the cover almost the sanction of a copyright. Mr. Harry Shaw, General Editor, Harper and Brothers, spoke of literary aspects. He was quite humorous. He said that he had read all four journals, but confessed that he had not understood a word in any. He was impressed (not favorably) by the polysyllabic words and the verbosity. He was convinced that there was no such thing as good writing, but there was sometimes good re-writing. Mr. John Storm, Executive Editor of *Hospitals,* discussed the editorials. What he found most to complain of was that the editors did not seem to have any plan or objective. Dr. Fishbein commented on the scientific material. Practically all the articles had been prepared to present at a medical meeting and for that reason did not make good reading. A bibliography, unless the article is a complete review of the subject, should be limited to those actually referred to in the text, and in that case he preferred the reference to be on the same page. In regard to case reports, and they made the best possible scientific literature, they should not be mere copies of the hospital record; they should be condensed as much as possible and all unnecessary and routine data and hospital jargon should be left out. To report all the temperature readings, all the blood pressure determinations and all the blood counts only made the report tiresome and added nothing to its scientific value. The "clinic" excited much favorable comment and the editors felt that their attendance was well worth while.

The World Medical Association

BEFORE the last war there was an international medical association with a French name. The American Medical Association belonged to it at one time, but withdrew from it on account of its leftists tendencies. After World War II a movement for a world wide association was started by the English and Canadians. A preliminary meeting was held in London in April 1947, at which time there was an attempt to revive the old international association. However this was defeated and it was decided to start *de novo.* The aims of the new society are to promote world health and also to promote world peace. An organization meeting has been held in Paris at which there were 115 persons representing 46 nations. The membership is to consist of two representatives from each national medical association. The president is to come

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from the nation in which the meeting is to be held. This year he was a Frenchman. Next year the meeting is to be held in Prague. There will be a Council of ten.

The question of finances is an unusually complicated one as many of the countries will not permit money to cross their boundaries. Already there are three depositories, England, France and Switzerland. The treasurer is a Swiss. Friends of American Medicine have provided a fund of $50,000.00 a year to be held by five members of the American Medical Association and four representatives of the donors. This money is to remain in this country until its expenditure is sanctioned by the delegates from the United States. The permanent secretary is to have his office in New York City. It is the opinion of Dr. Sensenich that we have little to gain from such an organization, but can give a lot to it in the way of raising the level of health over the world and in promoting national organizations of doctors in countries where there are weak national societies or none at all. Already the Association has taken action condemning the war crimes committed by German doctors and refusing to admit the German society until it has expelled those members guilty of such crimes.

SOCIETIES

The Alexandria Medical Society,

At its regular monthly meeting, December 11, was addressed by Dr. Joseph S. Lawrence, Washington representative of the American Medical Association. Dr. Lawrence discussed the various legislative matters pertaining to national health which are still in the embryonal stage in the several committees in Congress. He further stressed the importance for local medical societies to take the lead in promoting better health for all individuals in the community through all existing and available agencies, both public and private. It was his thought that much more could be accomplished in the improvement of health by local groups in the individual communities than by an unwieldy national program.

Dr. Jefferson D. Kernodle, Alexandria Hospital, was elected into the Society.

GEORGE SPECK,
Secretary

The Arlington County Medical Society,

At its meeting on December 18, elected Dr. Walter P. Hammer as president, and Dr. M. Roy Nicholson as vice-president. Dr. Leo Solet was re-elected secretary-treasurer.

Fredericksburg Medical Society.

The officers of this Society recently elected for 1948 are: President, Dr. Thomas B. Payne; vice-president, Dr. James G. Willis; and secretary-treasurer, Dr. D. W. Scott.

The Lynchburg Academy of Medicine

Held its regular meeting on December 8th. The following officers for 1948 were elected: President, Dr. Harold L. Riley; president-elect, Dr. William Pugh; and vice-president, Dr. Eugene Groseclose. The secretary and treasurer will be elected at the January meeting. New trustees are: Drs. J. T. T. Hundley, George Craddock, and Clarence Keefer. Delegates to the 1948 meeting of the State Society were also elected at this time.

Richmond Academy of Medicine.

At the annual meeting of the Academy held on December 16th, the following officers for 1948 were named: Dr. E. T. Gatewood succeeds to the presidency; Dr. H. J. Warthen, president-elect; and Drs. H. Hudnall Ware and Emily Gardner, vice-presidents; Drs. Ennion Williams and Oscar Hite were elected to the Board of Trustees. Following a business session, the usual Christmas party was held.

The Smyth County Medical Society

Held its monthly dinner meeting on November 19, with an attendance of ten members and two guests.

The minutes of the last meeting were read and approved. Dr. A. D. Hutton read the proposed constitution and by-laws section by section. Each section was approved and adopted with recommendation for changes as applied to this society.

A letter from the Medical Society of Virginia

was read regarding the group life insurance plan for physicians and their employees urging each physician to consider carefully this plan. Dr. A. D. Hutton, Dr. D. C. Boatwright and Dr. R. H. Harrington were appointed a committee of three to see that this program be carried out insofar as possible.

A letter from the Virginia council on Health and Medical care was read which urged every member to attend a meeting in Abingdon on December 9, at which time Dr. Philip Smith and Dr. H. B. Mulholland would present the facts and the legislative program which the council is supporting.

It was proposed that the secretary bring cards for each member of this society to fill out giving his medical history; these cards to be made a permanent part of the records of this society.

Dr. R. H. Harrington suggested that the Delegate from this society to the House of Delegates of the Medical Society of Virginia not be the same as the Delegate from the Southwestern Virginia Medical Society.

Dr. E. W. Kirby of Bluefield presented an informative and interesting paper on "Obstructive Lesions of the Urinary Tract" with lantern slides.

The meeting was then adjourned.

RICHARD C. POTTER,
Secretary-Treasurer

Virginia Peninsula Academy of Medicine.

Dr. Arthur M. Walker of Washington, D. C. addressed the Academy at its meeting on December the 15th, at which Dr. Paul Hogg of Newport News presided. Dr. Walker's subject was "Streptomycin in the Treatment of Tuberculosis". Dr. Chester D. Bradley of Newport News is secretary.

NEWS

Dates Selected for State Meeting.

In order that the hotel might be free to accept other conventions, it was necessary that the members of the Council vote by mail as to a choice of dates for the 1948 meeting of the Medical Society of Virginia in Richmond. It was unanimously decided to select the dates as October 18, 19 and 20. The John Marshall will be headquarters hotel.

Southern Surgical Association.

Dr. Frank S. Johns of Richmond, president, presided at the sessions of this Association held at Hollywood Beach, Florida, early in December. There was a good attendance with excellent representation from Virginia. Dr. Edwin P. Lehman, Charlottesville, was elected president for 1948 and Dr. Alfred Blalock of Baltimore was re-elected secretary. The next meeting will be held at the Greenbrier, White Sulphur Springs, West Virginia in December.

Dr. Sidney S. Negus,

Head of the Department of Chemistry at the Medical College of Virginia, has been appointed acting administrator of the Richmond Area University Center, succeeding Dr. George B. Zehmer. The latter has returned to the University of Virginia where he is dean of the Summer School and director of extension. Dr. Negus will continue his duties at the Medical College while directing the center's cooperative educational program.

Dr. I. M. Nuckols,

Who practiced for some years at Mount Sidney, has moved to Staunton where he is engaged in general practice and obstetrics. He is also a member of the staff of the King's Daughters' Hospital in that city.

The Seaboard Medical Association of Virginia and North Carolina

Held its fifty-second meeting at The Cavalier, Virginia Beach, December 2-4, under the presidency of Dr. O. R. Yates, Suffolk. New Officers are: President, Dr. Zack D. Owens, Elizabeth City, N. C.; vice-presidents, Drs. R. Bryan Grinnan, Norfolk, John A. Payne, Sunbury, N. C.; W. Holmes Chapman, Suffolk, and T. W. Blanchard, Hobbsville, N. C.; and secretary-treasurer, Dr. Clarence Porter Jones, Newport News, re-elected. The 1948 meeting will be held in Elizabeth City, N. C.

Married.

Dr. Robert H. Courtney, Richmond, and Miss Margaret Elizabeth Ewell, Parksley, November 29th. He is professor of ophthalmology at the Medical College of Virginia.

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Dr. Rucker Honored.

Dr. Joseph Rucker of Bedford was recently awarded the diamond insignia from the Norfolk and Western Railway as a symbol of fifty or more years of service with that railway.

Dr. Alexander G. Brown, Jr.,

Richmond, Governor-General of the Colonial Wars society, was guest speaker at the fifty-fifth annual dinner of the Society in the Commonwealth of Massachusetts, which took place recently in Boston.

Are You Interested in the Group Insurance?

Enrollment in the Medical Society Group Insurance is still open and cards are being received daily. You are urged to send in your card and check immediately if you desire to be covered by this insurance. For answers to your questions about this Plan adopted by the Society write to—

MEDICAL SOCIETY OF VIRGINIA
Group Insurance Fund
1200 East Clay Street
Richmond, Virginia.

The Insurance Company can not make the insurance effective until 75% of the eligible Doctors enroll in the Plan. Prompt application for the insurance will expedite the Plan. Don't delay! Enroll Now.

Dr. F. Musgrave Howell,

Recently of Hopewell, has moved to Irvington where he will continue his practice.

Dr. Gray Is Parke-Davis Medical Consultant

Announcement has been made that Dr. J. P. Gray has joined the staff of Parke, Davis & Company in the capacity of Medical Consultant to the Sales and Promotion Division. Dr. Gray comes to Parke-Davis with an exceptional medical background. A graduate of Johns Hopkins University with an M.D. degree, and of the Harvard School of Public Health with an M.P.H., he served in public health work for many years, including posts with the United States Marine Hospital in New Orleans, the state of California and the city of San Francisco, and the Michigan Community Health Project of the W. K. Kellogg Foundation. He also is an educator, having lectured in public health at the University of California, served as dean of the School of Medicine of the Medical College of Virginia in Richmond, and also as dean of the School of Medicine, University of Oklahoma, and superintendent of the University hospitals.

New A.M.A. Handbook.

A new handbook summarizing the functions of each of the councils, bureaus and key departments of the American Medical Association is now being printed. The publication is primarily for physicians and was written to provide information and services which the association is prepared to offer its members. Copies are available upon request to the Association at 535 North Dearborn Street, Chicago 10, Illinois.

American College of Surgeons.

The College has announced six sectional meetings in 1948 as follows:

Toledo, January 20-21, Commodore Perry Hotel
Atlanta, January 26-27, Ansley Hotel
Oklahoma City, January 30-31, Oklahoma Biltmore Hotel
Denver, March 1-2, Cosmopolitan Hotel
Minneapolis, March 15-16, Hotel Nicollet
Halifax, May 17-18, The Nova Scotian

These meetings are for Fellows of the College, the medical profession at large, and hospital personnel.

Michigan Postgraduate Clinical Institute.

The Second Annual Michigan Postgraduate Clinical Institute will be held at the Book-Cadillac Hotel, Detroit, March 10-11-12, 1948. Forty-nine outstanding clinicians and lecturers will present a concentrated three-day postgraduate course covering the newest developments in medicine, surgery, obstetrics, pediatrics, dermatology, ophthotolaryngology and general practice.

Two evening sessions will be held, the Wednesday night presentation being a "question box" and the Thursday evening program being a panel discussion on "First Aid to the Acutely Injured Patient".

All members of the American Medical Association and of the Canadian Medical Association are cordially invited to attend the Michigan Postgraduate Clinical Institute. No registration fee.

Medical College of Virginia.

The fourteenth annual post-graduate course in Ophthalmology and Otolaryngology was held in Baruch Auditorium of the College, November 10 through November 13. The course was sponsored

by the Virginia Society of Ophthalmology and Otolaryngology. Following an informal dinner at the Commonwealth Club on the 11th, the Eye, Ear, Nose and Thoat section of the Richmond Academy of Medicine presented a program at the Academy Building.

Lecturers for the course included Dr. Harvey B. Haag, Medical College of Virginia; Dr. Harry P. Schenck, University of Pennsylvania; Dr. Charles D. Blassingame, University of Tennessee; Dr. Francis E. LeJeune, Tulane University; Dr. Julius Lempert, Lempert Institute of Otology; Dr. C. Stewart Nash, University of Rochester; Dr. Louis H. Clerf, Jefferson Medical College; Dr. Alfred Cowan, University of Pennsylvania; Dr. Donald Lyle, University of Cincinnati; Dr. Walter S. Atkinson, Secretary American Ophthalmological Society, Watertown, New York; and Dr. Bruce Fralick, University of Michigan.

Dr. Edwin D. Vaughan

Has returned to Ashland, having recently completed a two years study at the New York Eye and Ear Infirmary. He has offices in Professional Building, Richmond where he is engaged in the practice of otorhinolaryngology.

Southeastern Allergy Association.

The Third Annual Meeting of this Association will be held in Richmond, January 17-18, with headquarters at the Jefferson Hotel. Dr. J. Warrick Thomas, Richmond, is president, and Dr. Katharine B. MacInnis, Columbia, S. C., secretary-treasurer.

Associated With Dr. Young.

Dr. Newland William Fountain, who has just completed a residency of Ophthalmology at Edwin J. Meyer Memorial Hospital, Buffalo, N. Y., is now associated in the practice of ophthalmology with Dr. Charles A. Young of Roanoke, with offices in Medical Arts Building.

Essay Contest.

The Eighth Annual Essay Contest of the Mississippi Valley Medical Society will be held in 1948. The Society will offer a cash prize of $100.00, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest (including medical economics and education) and practical value to the general practitioner of medicine. Certificates of merit may also be granted to the physicians whose essays are rated second and third best. Contestants must be members of the American Medical Association who are residents of the United States.

All contributions shall be typewritten in English in manuscript form, submitted in five copies, not to exceed 5000 words, and must be received not later than May 1, 1948. The winning essay in the 1947 contest appears in the January 1948 issue of the *Mississippi Valley Medical Journal* (Quincy, Illinois).

Further details may be secured from Harold Swanberg, M. D., Secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Building, Quincy, Illinois.

For Sale.

McCarthy Pan-Endoscope and McCarthy Visual Prostatic Electrotome. Used very little and as good as new. Write "McCarthy", care of this journal. (*Adv.*)

For Sale.

Maico audiometer three years old, in perfect condition, complete with air conductor, bone conductor, malingering and loudness balance. If interested please write to Suite 46, 1746 K Street, N. W., Washington 6, D. C. (*Adv.*)

For Rent.

New completely furnished office in Richmond for young practitioner. Available immediately. Write "Office" care the Monthly, 1200 East Clay Street, Richmond 19, Virginia. (*Adv.*)

Wanted—

North Carolina Clinic which is enlarging has two openings:

Ophthalmologist-Otolaryngologist, must be well trained;

One general Medical man with some experience in handling industrial cases.

Send reply to N. C. Clinic, care this journal, 1200 East Clay Street, Richmond 19, Va. (*Adv.*)

Opportunity,

Princeton, W. Va. Completely equipped offices and operating room. Everything modern; includes long lease and all furnishings, library and equipment on terms to suit reliable purchaser. Have retired. Dr. I. T. Peters, Princeton, W. Va. (*Adv.*)

OBITUARIES

Dr. John Bowdoin Mears,

Keller, died November 16th at the age of sixty-eight. He received his medical degree from the University of Virginia in 1901. He entered the U. S. Navy in 1906 where he remained until his retirement as Captain several years ago. Dr. Mears had been a member of the Medical Society of Virginia for forty-five years. His wife survives him.

Dr. Joseph Long Alexander,

Prominent eye, ear, nose and throat specialist of Staunton, died December 16th, at the age of seventy. A native of Stuarts Draft, he studied medicine at the University of Virginia, from which he graduated in 1900. After an internship, he practiced at Mount Solon for fourteen years, after which he took a special course in New York and then located in Staunton. Dr. Alexander was a member of his local and State medical societies, the American Medical Association, and of several civic organizations. His wife and three children survive him.

Dr. Benjamin Lewis Carter,

Prominent physician of Alleghany County, died December 7th. He had been in unusually good health and had come home from the funeral of a friend several hours before being found dead in his favorite chair by the fire. Dr. Carter was eighty-two years of age and a graduate of the Baltimore Medical College in 1893. He had practiced in Alleghany County since his graduation and was a member and secretary of the Alleghany County Board of Health. He had been a member of the Medical Society of Virginia for forty-six years. Four daughters survive him.

Dr. Elizabeth French Collins Whitehead,

Well known Norfolk physician, died at her home in Ingleside, November 27th, after having been in ill health for two years. She was seventy-three years of age and a graduate of the Woman's Medi- College of Pennsylvania in 1899. Dr. Whitehead was a member of the Medical Society of Virginia. She is survived by a son and a daughter.

Dr. Edward Gibson Brumback,

Luray, died of coronary thrombosis on August 13. He was seventy-three years of age and graduated from the former University College of Medicine, Richmond, in 1897. He was affiliated with the Page Memorial Hospital and was a member of the Medical Society of Virginia and of the American Medical Association.

Dr. Loring Hammer,

Prominent physician of Luray, died November 23rd, after an illness of six years. He was sixty-three years of age and a graduate of the Medical College of Virginia in 1909. Dr. Hammer had practiced in Luray since his graduation. He was a member of the Medical Society of Virginia. His wife survives him.

Dr. Francis Power Parker,

Charlottesville, died of a heart attack on November 26th, at the age of forty-one. He was a native of New York and graduated from Emory University in Atlanta, and was in the Medical Corps of the Army during World War II. Dr. Parker was associate professor of pathology at the University of Virginia. His wife and three children survive him.

Dr. Chertsey Hopkins DeJarnette,

Wife of Dr. J. S. DeJarnette, former superintendent of Western State Hospital, Staunton, died December 7th. She was seventy-nine years of age and graduated from the Woman's Medical College of Pennsylvania in 1894. After her graduation, she came to the Western State Hospital as an assistant physician and remained there until 1906 when she married Dr. DeJarnette. Her husband survives her.

Dr. Holman Taylor,

Executive Secretary of the Texas State Medical Association, died December 5th while attending a "Flowers for the Living Banquet" given in his honor. After the dinner was over, he stopped to greet some of the guests and while talking was stricken with a heart attack and died within a few minutes.

Dr. J. E. Knight.

As we go to press, we learn with deep regret of the death of Dr. J. E. Knight of Warrenton, who has served the Medical Society of Virginia most efficiently as councilor from the Eighth Congressional District for several terms.

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